

The finest
astronomy books
and products,
selected by the
editors of

SKY & TELESCOPE ®

The Essential Magazine of Astronomy®



...The Best Astronomy Magazines in the Universe!

Sky & Telescope The Essential Magazine of Astronomy

"The monthly bible for amateur astronomers." — Technology Review

Since 1941 Sky & Telescope has been the most reliable source of astronomy news and information in the cosmos. Each monthly issue brings you the latest astronomical discoveries, expertly written feature articles, reviews of telescopes and accessories, spectacular astrophotography, tips for backyard observers, a detailed calendar of celestial happenings to watch for, and much, much more. And it's all presented in a format that's as enticing and colorful as the universe itself. S&T gives you more timely and extensive editorial coverage than any other astronomy magazine. And with more advertising pages too, it's the best place to find out what's new in products and services for skygazers of all levels.

# SUBSCRIBE TODAY!

(12 monthly issues per year)	1 Year	2 Years	3 Years
United States and possessions	\$37.95	\$69.95	\$95.95
Canada (includes GST)	\$46.95	\$87.95	\$122.95
International	\$54.95	\$103.95	\$146.95

All rates payable in U.S. funds; prices subject to change. International delivery is by expedited air freight. Subscriptions to Sky & Telescope are available to astronomy-club members and full-time students at reduced rates. Please call for details, or contact your club treasurer or astronomy instructor.

# SkyWatch '98 Your Guide to Stargazing & Space Exploration

This annual publication is written for anyone with a general interest in astronomy and space flight. Geared mainly toward beginners, it will also appeal to amateur astronomers and other outdoor enthusiasts who want to enhance their enjoyment of the night sky and make informed decisions about buying astronomical equipment. Sky Watch '98 entices you with exciting, colorful coverage of astronomy and space highlights. Its centerpiece is a handy guide to the stars and planets for the coming year, including monthly all-sky charts and tips on catching must-see celestial happenings such as mete-or showers and eclipses. Sky Watch '98 offers expert advice on getting started in astronomy, choosing and using binoculars and telescopes, selecting astronomy software, and exploring the universe on the Internet. It also previews forthcoming space-science highlights, including both piloted and robotic missions.

Newsstand Price: \$4.95. Your Price: \$3.95, postpaid.

Price valid in the U.S. and possessions. International price: \$4.95 per copy (in Canada, includes GST). Payment must be in U.S. funds. Price includes postage.

#### **BACK ISSUES**

Selected back issues of Sky & Telescope are available from the January 1985 issue for \$4.50 per copy in the United States and possessions and \$5.00 per copy elsewhere, postpaid. Contact our Customer Service Dept. for a list of available issues, or see the  $S \not \circ T$  back-issues page on our Web site at http://www.skypub. com/s\_t/s\_tback.html.

ATTENTION ASTRO-IMAGING ENTHUSIASTS: Selected back issues of our short-lived but highly praised quarterly, CCD Astronomy, are available from the premier issue, Spring 1994. They are priced at \$5.95 per copy in the U.S. and possessions and \$7.95 per copy elsewhere, postpaid. Or choose any four issues for \$20.00 (U.S. and possessions) or \$30.00 (elsewhere), postpaid. A complete list of available issues is on the Web at http://www.

# FROM THE PUBLISHER

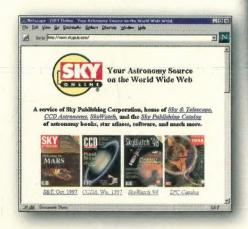
### CONTENTS

Calendars & Almanacs	4
Planispheres & Flashlights	5
Getting Started in Astronomy	6
Observing with Binoculars	7
Sky Atlas 2000.0	8
Sky Catalogue 2000.0	9
Other Fine Atlases & Catalogs	10
Millennium Star Atlas	12
Telescopes & Telescope Making	14
Maps & Globes	16
Messier & Beyond	18
Sky & Telescope Observer's Guides	19
Observers' Handbooks	20
Celestial Software	22
References & Resources	24
Hubble Space Telescope	26
Images of the Cosmos	28
Astro Imaging	30
Index Comment of the control of the	31

# **SKY Online:**

# Your Astronomy Source on the World Wide Web

Check out the latest offerings from Sky Publishing 24 hours a day, 7 days a week on the World Wide Web! Point your browser to http://www.sky-pub.com/ to visit SKY Online, the Internet's premier gateway to astronomical news and information. Here you'll find our entire Sky Publishing Catalog as well as Sky & Telescope's award-winning Weekly



News Bulletin and skywatching calendar, late-breaking comet news, solar and lunar eclipse predictions, stargazing tips, equipment reviews, free software for your personal computer, a global calendar of star parties, links to other astronomy- and space-related Web sites, and a universe of other electronic resources to make exploring cyberspace almost as much fun as exploring outer space.

# To order from this catalog, call toll free 800-253-0245

Outside the U.S. and Canada, call +1-617-864-7360. • Hours: 8:30 a.m. to 5 p.m. Eastern Time, Monday–Friday (Nov. 3 to Dec. 19, 1997: 8 a.m. to 8 p.m. Eastern Time, Monday–Friday). • Please have your VISA, MasterCard, or Discover card ready. • 24-hour fax: 617-864-6117 (use the order form bound in this catalog).

Sky Publishing Corp.
P.O. Box 9111, Belmont, MA 02178-9111, U.S.A.
E-mail: orders@skypub.com • http://www.skypub.com/

Cover photo (stars and nebulosity) by David Malin, Anglo-Australian Observatory.

WHAT A YEAR! Stunning new images from the Hubble Space Telescope, Comet Hale-Bopp's dazzling performance, Pathfinder's dramatic landing on Mars — all caught the public's fancy and stimulated new interest in astronomy and space exploration. Remarkably, the coming year promises to be every bit as exciting as the last. February brings an eclipse of the Sun to most of the Americas. Mars Global Surveyor spends 1998 mapping the red planet with unprecedented clarity. And will this be the year the Leonid meteor storm returns to light up November skies? Whatever the next 12 months hold in store for us, Sky Publishing will be here to help you get the most from your enthusiasm for astronomy - with Sky & Telescope and Sky Watch, SKY Online, and our always popular Sky Publishing Catalog, offering the galaxy's the best selection of books, star atlases, observing guides, software, and related products for backyard skygazers.

This year's catalog features some 200 items selected for you by the editors of Sky & Telescope. Many of these are brand new, and you'll also find a few old favorites that we've brought back by popular demand. The most important addition is the Millennium Star. Atlas, produced by Sky Publishing in collaboration with the European Space Agency's Hipparcos project; you'll find it on pages 12 and 13. No serious stargazer will want to be without this new and impressively detailed map of the heavens.

Thanks to the dedication of our sales representatives and shippers, as well as our use of expedited package delivery, our customers have enjoyed ever faster and more efficient service. We strive to satisfy all our customers 100%. So if there's anything else we can do to improve our service to you, please don't hesitate to let us know. Clear skies!

Richard Trench Finding

Richard Tresch Fienberg
President/Publisher

# CALENDARS & ALMANACS

#### 1 • Sky & Telescope Sky-Gazer's Almanac 1998 New!

Which planets are visible in the sky tonight? When does twilight end? What time does the Moon rise, and what's its phase? Our colorful Sky-Gazer's Almanac (which appears in Sky & Telescope every January) answers these questions and more for every night of the year. Find out when sunsets, oppositions, conjunctions, and meteor showers occur. Trifold format eliminates staples! 4 pages, chart unfolds to 11 by 16 inches. Available in November 1997.

SG98R . . . \$2.25, postpaid

Orders of 1-9 copies are shipped by U.S.P.S. surface mail; bulk discounts (10 or more copies) and faster shipping are available.

### 2 • Sky & Telescope Sky-Gazer's Almanac 1998 Wall Chart New!

The Sky-Gazer's Almanac 1998 also comes in a poster-size version. Great for your observatory or classroom! 22 by 30 inches. Available in late November 1997.

SG98W . . . \$9.95

#### 3 • Wonders of the Universe 1998 Calendar New!

This beautiful wall calendar features 12 full-color images of terrestrial and celestial subjects. It notes important sky happenings and the anniversaries of key astronomical events. Opens to 12 by 24 inches.

#### 4 • Space Photos & Facts 1998 Desk/Wall Calendar New!

NASA's archives and those of the world's major observatories have been mined to yield a glorious color image of the cosmos for every day of the year. Sky & Telescope contributing editor Fred Schaaf wrote the captions. Moon phases, planetary appulses, and dozens of other sky events are noted on the appropriate dates. 368 pages (one page per day), 7 by 6 inches.

90037 . . . \$10.95

#### 5 • Astronomy & Space 1998 Weekly Calendar New!

Spend the year in space, one week at a time! This handy appointment book contains 54 stunning color photos with detailed, informative captions. It also notes daily sky events and milestones in astronomical and space history. 120 pages, 6 by 9 inches, spiralbound.

WEEKLY98 . . . \$12.95

#### 6 • Observer's Handbook 1998 New!

Edited by Roy L. Bishop

This handbook from the Royal Astronomical Society of Canada is an essential reference for active amateurs. It features a monthly calendar of sky events such as meteor showers and conjunctions, finder charts for the outer planets and bright asteroids, eclipse predictions, and lots of almanac data, plus many complementary articles. 244 pages, 51/2 by 81/2 inches, softcover. Available mid-November 1997.

H1998 . . . \$17.95

### 7 • Astronomical Calendar 1998 New!

By Guy Ottewell

Ottewell's legendary yearbook features day-by-day summaries of sky events and an abundance of helpful diagrams. For each month there is a star chart with a summary of interesting naked-eye and telescopic objects to see, plus much more. 72 pages, 11 by 15 inches, softcover. Available mid-November 1997.

C1998 . . . \$19.95

#### 8 • The Astronomical Almanac for the Year 1998 New!

The ultimate reference work for the serious observer. Compiled by the U.S. Naval Observatory and Her Majesty's Nautical Almanac Office in England, this comprehensive volume lists precise ephemerides and phenomena of the Sun, Moon, and planets and their satellites; positions of bright stars; elements for asteroids and periodic comets; and more. 558 pages, 7 by 10 inches, hardcover.

ASTRAL98 . . . \$37.95

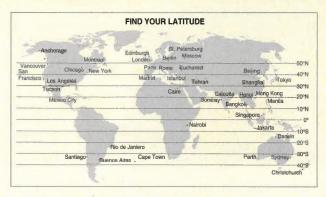
Note: In the United Kingdom the Astronomical Almanac should be purchased from Her Majesty's Stationery Office.



# PLANISPHERES & FLASHLIGHTS

Every stargazer needs a planisphere, or star wheel. When you set the dial for any date and time, it displays a miniature map of the visible sky. We offer a variety of models for every taste and budget. Use this map to find your latitude and decide which planisphere is right for you.





#### 9 • The Night Sky Planisphere

By David Chandler

This fine planisphere has a unique two-sided design for low distortion and a light background for easy night readability. Available in cardboard or durable plastic. (See page 7 for Chandler's companion guidebook, Exploring the Night Sky with Binoculars.)

20°-30° N (\$2032) / 30°- 40° N (\$3040) / 40°- 50° N (\$3850)

Cardboard, 10 inches square . . . \$5.95 each

20°- 30° N (2032P) / 30°- 40° N (3040P)

40°- 50° N (3850P) / Southern Hemisphere (\$0116)

Plastic, 8½ inches in diameter . . . \$9.95 each

#### 10 • The Night Sky Miniplanisphere

By David Chandler

A durable, pint-size version of *The Night Sky*. Makes a great travel or camping companion. Keep one in the glove compartment of your car or truck!

20°- 30° N (\$0084) / 30°- 40° N (\$0085) 40°- 50° N (\$0086) / Southern Hemisphere (\$0087) Plastic, 5 inches in diameter . . . \$5.95 each

#### 11 • Precision Planet and Star Locator

By David Kennedal

Call it the Mercedes of planispheres. This advanced model features:

- · azimuth and altitude lines
- a setting for dialing in the coordinates of any celestial object, plus a booklet of position tables for the Sun, Moon, and planets through the year 2003
- a back window showing southern constellations with reduced distortion
- time-of-twilight indicators
- longitude and daylight-saving-time correction settings.

30° N (S00A8) / 35° N (S00B8) / 40° N (S00C8) 45° N (S00D8) / 50° N (S00E8) / 30°–60° N multihorizon (S00F8) Plastic, 11 inches in diameter . . . \$19.95 each

#### 12 • Starlite Red LED Flashlight A bestseller!

This sturdy light is ideal for reading planispheres and star charts without compromising your dark adaptation. It features a custom-made case, two ultrabright, red, light-emitting diodes (LEDs), and thumbwheel brightness control. Comes with a 20-inch neck strap and 9-volt battery. 41/2 by 1 by 11/4 inches.

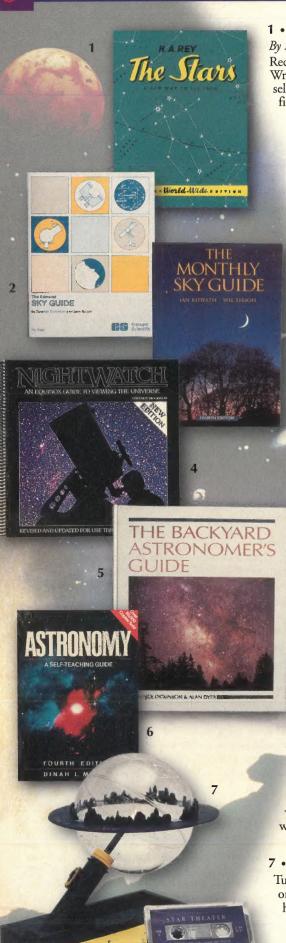
S0119 ... \$24.95

#### 13 • Skylite Red/White LED Flashlight New!

The quest for the ultimate astronomical flashlight has moved forward once again! Not only do you get two red LEDs like those in the Starlite, but you also get two full-spectrum white LEDs, handy for those times when you don't need to worry about dark adaptation or when you need to be able to read color-coded information on star charts. Easily switch between red and white light with the flick of your thumb, then use the thumbwheel brightness control to set the desired illumination. Comes with a 20-inch neck strap and 9-volt battery. 41/2 by 1 by 11/4 inches.

SKYLITE . . . \$34.95

# GETTING STARTED IN ASTRONOMY



#### 1 • The Stars: A New Way to See Them

By H. A. Rey

Recently reprinted, this remains our all-time favorite guide to learning the constellations. Written for older kids and adults, its wonderfully warm, simple style has made it a top seller for more than 40 years. Classy cartoon illustrations and star charts round out this fine guidebook. 160 pages, 8½ by 11 inches, softcover.

48302 . . . \$11.95

#### 2 • The Edmund Sky Guide

By Terence Dickinson and Sam Brown

Bitten by the observing bug but not sure where to start? This detailed guidebook to the night sky is filled with useful information on identifying stars, reading charts, finding deep-sky wonders, and understanding sky motions. Hand-drawn illustrations help you with everything from star-hopping to identifying the constellations. A great field guide! 36 pages, 8½ by 11 inches, softcover.

09535 . . . \$6.95

# 3 • The Monthly Sky Guide, 4th Edition Back in print!

Ian Ridpath and Wil Tirion

This famous night-sky guide, organized month by month, is noted for its clear all-sky charts and useful close-ups interesting regions. Complementing the illustrations are tables and descriptions of constellations, star clusters, nebulae, galaxies, meteor showers, and planetary movements. Most of the sights discussed can be observed with binoculars or small telescopes, making this a straightforward introduction to the skies of the Northern Hemisphere for beginners of all ages. 64 pages, 8½ by 11¾ inches, softcover Available in January 1998.

68390 . . . \$15.95

# 4 • Nightwatch: An Equinox Guide to Viewing the Universe, 2nd Edition

By Terence Dickinson

This delightful introduction to backyard astronomy offers clearly written text and user-friendly sky diagrams. *Nightwatch* covers the night sky, stargazing equipment, and observing basics, striking a perfect balance between not telling you enough and telling you more than you really want to know. It also suggests where to find more information as your interest in astronomy grows. Ages 12 and older. *160 pages*, 10 by 10½ inches, spiralbound.

56897 . . . \$24.95

#### 5 • The Backyard Astronomer's Guide

By Terence Dickinson and Alan Dyer

The companion volume to Dickinson's *Nightwatch* takes amateurs to the next level in pursuing their interest in astronomy. More than 200 astrophotos and illustrations accompany instructions on how to observe a wide variety of sky objects. The authors also cover the best way to select an observing site and the hows and whys of choosing binoculars and telescopes. A detailed guide to equipment places special emphasis on new products and innovations. Tips from well-known astro-experts round out this essential reference. *294 pages*, 9<sup>3</sup>/<sub>4</sub> by 11<sup>1</sup>/<sub>4</sub> inches, hardcover.

20119 . . . \$39.95

#### 6 • Astronomy: A Self-Teaching Guide, 4th Edition

By Dinah L. Moché

Learning astronomy is easy with this popular, workbook-style textbook. The equivalent of an introductory high school or college course on the subject, this guide provides instruction in basic principles and contemporary topics. It includes the latest developments in astronomy, such as the Hubble Space Telescope and Galileo missions, as well as new illustrations. 320 pages, 7 by 10 inches, softcover.

30018 . . . \$17.95

#### 7 • Star Theater

Turn your room into a planetarium! This 5½-inch globe projects stars and constellations onto any wall or ceiling. A horizon ring creates a realistic city skyline. We've tested all the home planetariums on the market, and this one wins hands down! Comes with a 56-minute audiocassette that relates the legends of the night sky. Requires four AA batteries (not included). Ages 8 and older.

33599 . . . \$29.95

# **OBSERVING WITH BINOCULARS**

### 8 • Exploring the Night Sky with Binoculars

By David Chandler

In this popular companion guide to *The Night Sky* planisphere (see page 5), Chandler explains the basics of binocular observing and how to spot a number of interesting celestial objects. Great for beginners. 45 pages, 8½ by 5½ inches, softcover.

20702 . . . \$7.95

#### 9 · Binocular Astronomy

By Craig Crossen and Wil Tirion

This engaging guide to the deep sky starts out with basic celestial concepts and observing techniques, then takes you on a season-by-season tour, pointing out interesting sights in each constellation — about 250 in all — as seen in ordinary  $7 \times 50$  to  $10 \times 50$  binoculars. Includes the magnitude-6.5 charts of the entire sky from *Tirion's Bright Star Atlas 2000.0* (see page 10) as well as detailed finder charts. A good choice for intermediate-level binocular observers. 224 pages, 8½ by 11 inches, hardcover.

96360 . . . \$24.95

### 10 • Touring the Universe Through Binoculars

By Philip S. Harrington

Renowned skygazer and author Harrington describes more than 1,100 stars, clusters, galaxies, and nebulae visible with medium and large binoculars. Objects are arranged by constellation. The text includes sections on the Sun, Moon, planets, and asteroids. Use with a star atlas such as Sky Atlas 2000.0 (page 8), Uranometria 2000.0 (page 11), or the Millennium Star Atlas (page 12). 294 pages, 7 by 10 inches, softcover.

13377 . . . \$32.95

#### 11 • Deep-Sky Objects for Binoculars

By John T. Kozak

This guide describes 130 deep-sky objects you can find with binoculars and a star chart on any clear, dark night. Kozak also discusses the mechanics of binoculars, what to look for when buying them, and how to improve your observing abilities. 128 pages,  $5\frac{1}{2}$  by  $8\frac{1}{2}$  inches, softcover.

46506 . . . \$8.95

# 12 • Exploring the Moon Through Binoculars and Small Telescopes

By Ernest H. Cherrington, Jr.

Reviews every major lunar feature in 28 night-by-night (phase-by-phase) chapters, with lots of black-and-white photographs. For intermediate-level observers. 229 pages, 8½ by 11 inches, softcover.

44911 . . . \$14.95

See our Moon maps on page 16, too.

#### 13 · Sky & Telescope's Pupil Gauge

Every amateur astronomer should know his or her maximum pupil diameter. It's important for selecting the right binoculars and low-power telescope eyepieces. Find out yours with *Sky & Telescope's* Pupil Gauge. Includes background information and instructions. *Flexible plastic*.

S0065 . . . \$2.95

Special offer: Buy any binocular book on this page and get S&T's Pupil Gauge for \$1! \$0065X (Pupil Gauge with Bino Book) . . . \$1.00

### **ESSCO® Classroom Charts and Laboratory Exercises**

Sky's ESSCO® star charts and tables, and our popular Laboratory Exercises in Astronomy, are designed for introductory astronomy classes and amateurs interested in learning the fundamentals. Each Laboratory Exercise was prepared or approved by Owen Gingerich, Harvard-Smithsonian Center for Astrophysics, and most originally appeared in *Sky & Telescope*. All ESSCO® publications may be purchased in bulk quantities at low cost for classroom use. Contact customer service for a full listing of publications and prices.



# SKY ATLAS 2000.0 AND..

To find celestial objects with binoculars or a telescope, you need a good star atlas. Without one you're lost in space! The fainter (higher numbered) a chart's limiting magnitude, the more stars it shows, but the more familiar you must be with the sky to navigate among them.

If you're using binoculars, you'll want an atlas that shows stars to magnitude 6 or 8. If you have a telescope, an 8th-magnitude atlas such as Sky Atlas 2000.0 is essential. A more detailed atlas with a limiting magnitude of 9 or 10 (such as Uranometria 2000.0 on page 11) allows you to locate faint objects better, once you know your way around the sky well enough to use it. Serious skygazers should consider the Millennium Star Atlas on page 12; it shows more than a million stars to 11th magnitude!

The sample chart areas illustrated at right are actual size.

# Sky Atlas 2000.0 Our biggest seller!

By Wil Tirion

The standard against which all other star atlases are measured! Each edition of *Sky Atlas 2000.0* contains 26 charts covering the whole sky.

- 43,000 stars, magnitude 8 and brighter
- 2,500 deep-sky objects
- symbols for variable, double, and multiple stars
- clearly marked constellation boundaries
- map key showing the portion of sky covered by each chart
- plastic coordinate-grid overlay for determining accurate positions.

#### **Deluxe Edition**

The deluxe edition, with black stars and color-coded deep-sky objects, is out of print. Watch *Sky & Telescope* for news of an expanded second edition, due out in mid-1998!

#### 1 • Field Edition

Stars and deep-sky objects are white on a black background. 18 by 13½ inches, printed on heavy paper, unbound and boxed.

46328 . . . \$24.95

#### 2 • Desk Edition

Stars and deep-sky objects are black on a white background. Easy to write on. 18 by 13½ inches, printed on heavy paper, unbound and boxed.

4631X . . . \$24.95

#### 3 • Laminated Field Edition

Stars and deep-sky objects are white on a black background. 18 by 13½ inches, laminated in clear plastic for maximum protection against weather and wear, spiralbound.

4632L . . . \$59.95

#### 4 • Laminated Desk Edition

Stars and deep-sky objects are black on a white background. 18 by 13½ inches, laminated in clear plastic, spiralbound.

4631L . . . \$59.95

### 5 • Map Key and Coordinate Grid (Laminated)

The map key and coordinate grid, previously offered only with the Deluxe Edition of *Sky Atlas 2000.0*, are now included with all editions. If you don't already have the map key and coordinate grid, you can purchase them separately. *Laminated in clear plastic for maximum protection against weather and wear.* 

S0081 . . . \$4.00

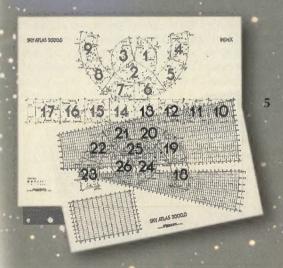
#### 6 • Sky Atlas 2000.0 Data Scale

This handy gadget for use with Sky Atlas 2000.0 lets you quickly determine the magnitudes of plotted stars and measure angular distances and telescope fields down to one degree. A "bull's-eye" shows the chart area visible in a Telrad 1× finder. It has a built-in magnifier, too! Clear plastic with felt feet.

S0075 Desk/Field . . . \$6.95 • S0076 Deluxe . . . \$7.95











7 • Sky Atlas 2000.0 Chart Carrier

If you have a Field or Desk Edition of *Sky Atlas 2000.0* and are looking for a convenient way to store and carry your charts and to protect them from dew, here's a nifty solution. This lightweight, custom-fit chart carrier is fashioned from water-resistant cordura, easily holds all 26 charts, and opens up flat for field use. Two charts at a time are visible through clear vinyl pockets that can be written on with an erasable marker (not included). Comes with a sturdy carrying handle, Velcro closure, and outside zippered pocket in which you can store your map key and coordinate grid, data scale, or other observing accessories.

SKYCC . . . \$19.95

# 8 • Sky Catalogue 2000.0, 2nd Edition Vol. 1: Stars to Magnitude 8.0

By Alan Hirshfeld, Roger W. Sinnott, and François Ochsenbein

In this massive tabulation you'll find the essential characteristics of more than 50,000 stars down to visual magnitude 8. It is a written record of data for essentially every star plotted in *Sky Atlas 2000.0*, its companion atlas. Features:

• positions for epoch 2000.0 accurate to 1 arcsecond

- every star identified by its Henry Draper and SAO catalog numbers
- every star identified by constellation
- stellar magnitudes (V) and colors (B–V)
- complete spectral information
- distances and absolute magnitudes when known
- proper motions and radial velocities
- variables, binaries, and members of clusters flagged for easy identification.

An introduction explains how to interpret and use the data. 704 pages, 9 by 12 inches. Copublished by Sky Publishing and Cambridge University Press.

46646 Hardcover . . . \$59.95 • 46638 Softcover . . . \$39.95

#### 9 · Sky Catalogue 2000.0

### Vol. 2: Double Stars, Variable Stars, and Nonstellar Objects

By Alan Hirshfeld and Roger W. Sinnott

If you're into deep-sky hunting, you've got to have this book. Volume 2 catalogs 15 different classes of celestial objects (excluding isolated stars, which are covered in Volume 1). Data and notes are tabulated for 8,000 double and multiple stars of 8th magnitude or brighter; orbits of 500 visual binaries with an ephemeris for each; all known variables that reach or exceed magnitude 9.0; 750 open clusters; more than 120 globular clusters; bright diffuse, reflection, dark, and planetary nebulae; galaxies; quasars; radio sources; and X-ray sources. Additional tables include the Messier objects and the Local Group of galaxies. 442 pages, 9 by 12 inches, softcover. Copublished by Sky Publishing and Cambridge University Press.

46387 . . . \$39.95

#### 10 • Sky Catalogue 2000.0 Diskettes (DOS, Mac)

Here are machine-readable versions of the two *Sky Catalogue 2000.0* volumes. Each comes with a demo program (written in BASIC) that allows you to extract all the catalogued objects within a specified window of sky. If you know BASIC, you can easily write your own applications.

Requirements: DOS: IBM compatible, DOS 3.3 or higher; Mac: 1 MB RAM, System 4.1 or higher, Finder 5.5 or higher. Note: The supplied BASIC program will not run on many Macintosh computers equipped with PowerPC processors. On such machines, you can examine the BASIC program in any word processor.

Volume 1, 2nd Edition Diskette:

S0027 DOS 31/2"...\$19.95 • S0073 Mac...\$19.95

New! Volume 2 Diskette: \$2001 DOS 31/2"...\$19.95 • \$2002 Mac...\$19.95

#### 11 • Sky Atlas 2000.0 Companion

By Robert A. Strong

Overwhelmed by the breadth and depth of *Sky Catalogue 2000.0*? Here's some lighter fare: an alphabetical listing of every deep-sky object (but none of the stars) plotted on *Sky Atlas 2000.0*. Included are object type, coordinates, size, and brightness. Another set of tables gives a chart-by-chart listing of "faint fuzzies." *221 pages, 8½ by 11 inches, spiralbound.* 

39301 . . . \$24.95



### 1 • Bright Star Atlas 2000.0

By Wil Tirion

This affordable starter atlas has 10 black-and-white maps covering the entire sky. It features 9,096 stars to magnitude 6.5, a list of the brightest deep-sky wonders (600 in all) facing each map, and 6 seasonal constellation finder charts. 32 pages, 9 by 12 inches, softcover.

96271 . . . \$10.95

#### 2 • The Cambridge Star Atlas, 2nd Edition

by Wil Tirion

This easy-to-use reference from the world's best-known celestial cartographer is an indispensable guide to the entire sky for beginning and intermediate skygazers. Pairs of monthly all-sky maps orient both Northern and Southern Hemisphere observers to the stars and constellations visible in the evening at different times of year. Next comes an atlas of the entire sky to magnitude 6.5 on 20 charts; stars are black, and deep-sky objects are color-coded for easy identification. Facing each chart is a list of its most interesting double stars, variables, star clusters, nebulae, and galaxies. There's a Moon map, too! 90 pages, 91/4 by 121/4 inches, hardcover.

60985 . . . \$19.95

#### 3 • Monthly Star Charts

By George Lovi and Graham Blow

For 25 years George Lovi's all-sky charts graced the center of Sky & Telescope. Now we offer the complete set — 12 Northern Hemisphere and 12 Southern Hemisphere charts — in one convenient volume. These maps depict the constellations with stars to magnitude 4.5, labeled with Greek letters and/or their common names. Northern maps show horizons every 10° from +20° to +50° latitude; southern maps range from -10° to -40°. Opposite each chart are an essay and tables and photos of key deep-sky objects. With white stars on a dark blue background, these charts are especially easy to read by red light. 56 pages, 11 by 13 1/2 inches, spiralbound.

46697 . . . \$24.95

### 4 • The Photographic Atlas of the Stars New!

By H. J. P. Arnold, Paul Doherty, and Patrick Moore

This beautiful atlas presents 45 glorious wide-field astrophotos taken from both the Northern and Southern Hemispheres. Each faces a detailed map (made from a negative of the same photo) labeling well-known stars and deep-sky objects. You won't find an atlas that does a better job than this one at showing how the sky really looks to the unaided eye or in binoculars! 224 pages, 111/2 by 81/4 inches, hardcover.

35313 . . . \$59.95

#### 5 • Atlas of Deep-Sky Splendors, 4th Edition

By Hans Vehrenberg

This cherished volume helps the amateur astronomer pinpoint faint objects in the night sky. It features 113 wide-field photographs,  $2\frac{1}{2}$ ° square, of some 400 galaxies, nebulae, and star clusters in their surrounding star fields. Most are at the same scale (1° = 60 millimeters) to show the objects' relative sizes, structures, and locations. Descriptive text provides a bounty of historical and astronomical information. 242 pages, 9½ by 12¾ inches, hardcover.

46034 . . . \$24.95

#### 6 • AAVSO Variable Star Atlas, 2nd Edition

By Charles Scovil

The 178 charts in this approximately 9th-magnitude atlas plot all variables with a brightness range of more than 0.5 magnitude and a maximum brighter than 9.5. Many comparison-star magnitudes are given. Includes an index of variable stars by constellation. 205 pages, 8½ by 11 inches, loose-leaf binder.

4628X . . . \$44.95

# HER FINE ATLASES & CATALOGS

#### 7 • Uranometria 2000.0

By Wil Tirion, Barry Rappaport, and George Lovi

This advanced-level atlas for the experienced telescope user displays 332,000 stars to as faint as magnitude 9.5, plus 10,300 deep-sky objects. Each map has a labeled coordinate grid with lines for every degree of declination and similar intervals of right ascension. The scale is a generous 1.4° per inch. Each volume contains 259 charts, 9 by 12 inches, hardcover.

9614X Vol. 1: Northern Hemisphere to -6° . . . \$39.95 96158 Vol. 2: Southern Hemisphere to +6° . . . \$39.95

#### 8 • The Deep-Sky Field Guide to Uranometria 2000.0

By Murray Cragin, James Lucyk, and Barry Rappaport

This book gives essential data for the 10,300 deep-sky objects plotted in the two volumes of Uranometria 2000.0. Its 473 tables, each matching one Uranometria chart, list the coordinates, dimensions, magnitudes, and other data for each plotted object, plus notes. Indexed for easy reference. 408 pages, 9 by 12 inches, hardcover.

96387 . . . \$49.95

#### 9 • Uranometria 2000.0 Data Scale

This handy gadget for use with Uranometria 2000.0 lets you quickly determine the magnitudes of plotted stars and measure angular distances and telescope fields down to 1/4°. A "bull's-eye" shows the chart area visible in a Telrad 1× finder. Clear plastic.

S0088 . . . \$8.95

#### 10 • NGC 2000.0

Edited by Roger W. Sinnott

This updated and expanded edition of the New General Catalogue gives coordinates and visual data for 13,226 nonstellar objects. NGC 2000.0 preserves the best of the original book and its two Index Catalogues (IC), while providing modern (2000.0) positions, magnitudes, sizes, and object-type identifications. Organized by right ascension, with cross-indexing by NGC and IC numbers. 304 pages, 6 by 9 inches, softcover.

46514 . . . \$14.95

#### 11 • NGC 2000.0 Diskette (DOS, Mac)

A machine-readable version of the book, minus the constellations, descriptions, and indexes. Comes with a demo program (written in BASIC) that allows you to extract all the NGC and IC objects within a specified window of sky; if you know BASIC, you can easily write your own applications. Requirements: PC: IBM compatible, DOS 3.3 or higher; Mac: at least 1 MB RAM, System 4.1 Or higher, Finder 5.5 or higher.

S0023 DOS 31/2" . . . \$14.95 S0042 Mac . . . \$14.95

### 12 • Deep-Sky Planner, Version 2.0 (Windows) New!

By Phyllis K. Lang

Make your next night of celestial sightseeing more efficient with this updated observation-planning program. With 10 astronomical catalogs in its database, Deep-Sky Planner creates customized reports of solar-system and nonstellar objects based on your selection criteria and viewing location. DSP 2.0 offers essential data for any object you specify, cross-referenced to its chart number in Sky Atlas 2000.0 and Uranometria 2000.0. Select objects by catalog, constellation, type, magnitude range, angular size, rise or set times, or combinations thereof. Or, choose a point in the sky and find out what deep-sky objects lie within a specified radius of it. Version 2.0 allows you to calculate ephemerides, including physical ephemerides, for the Sun, Moon, and all planets except Earth. You can also calculate times of eclipses, oppositions, greatest elongations, perihelions, lunar phases, and more.

System requirements: IBM PC-compatible computer running Windows 3.1/3.11/95 or OS/2 Warp 3.0 or higher; VGA or SVGA video; 4 MB RAM (8 MB recommended); 3.5 MB free hard-disk space. Math coprocessor strongly recommended but not required. Learn more about Deep-Sky Planner on the World Wide Web at http://www.skypub.com/catalog/dsp20/dsplan.html

DSP20 . . . \$49.95

Special upgrade offer: Send us your original DSP 1.0 (DOS) diskettes and we'll send you DSP 2.0 (Windows) for 40% off the regular price! DSPUP . . . \$29.95



E-mail your order to orders@skypub.com

# MILLENNIUM STAR ATLAS

Sky & Telescope and the European Space Agency proudly present the...

# MILLENNIUM STAR ATLAS New!

By Roger W. Sinnott and Michael A. C. Perryman

In collaboration with the European Space Agency's Hipparcos Project, *Sky & Telescope* introduces the first all-sky atlas based on the new stellar positions, brightnesses, and distances from the Hipparcos and Tycho Catalogues. The *Millennium Star Atlas* is a large-format observing aid designed for active field use by professional astronomers and serious amateurs.

More than 1,058,000 stars to visual magnitude 11, three times as many as any other all-sky atlas in print:

- 9,000 variable stars, including 5,100 new ones, with amplitude and type codes
- 22,000 multiple stars, including 3,000 new ones, with position angles and separations noted from 0.1–30 arcseconds
- 6,500 high-proper-motion stars
- Distances for 10,260 stars within 200 light-years of Earth

Complementing the Hipparcos data, *Sky & Telescope* has selected for inclusion a rich treasury of 10,000 nonstellar objects, many drawn to scale:

- 900 bright, dark, and planetary nebulae
- 860 open and globular star clusters
- 8,000 galaxies, with aspect ratios and orientations for all
- 930 galaxy clusters and quasars observable with backyard CCD equipment

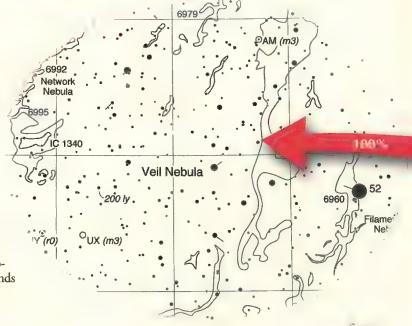
Three volumes, 516 charts each (1,548 charts in all):

- Three gores of right ascension (0h-8h, 8h-16h, 16h-24h), each covering the sky from pole to pole
- Page size 9<sup>1</sup>/<sub>4</sub> by 13 inches (235 by 330 millimeters)
- Chart area 5.4° by 7.4°
- Chart scale 100 arcseconds per millimeter
- Hardcover; printed on acid-free paper
- Durable, moisture-resistant binding; protective slipcase.

To learn more, please visit the Millennium Star Atlas home page on SKY Online at http://www.skypub.com/msa/msa.html.

46840 . . . \$249.95





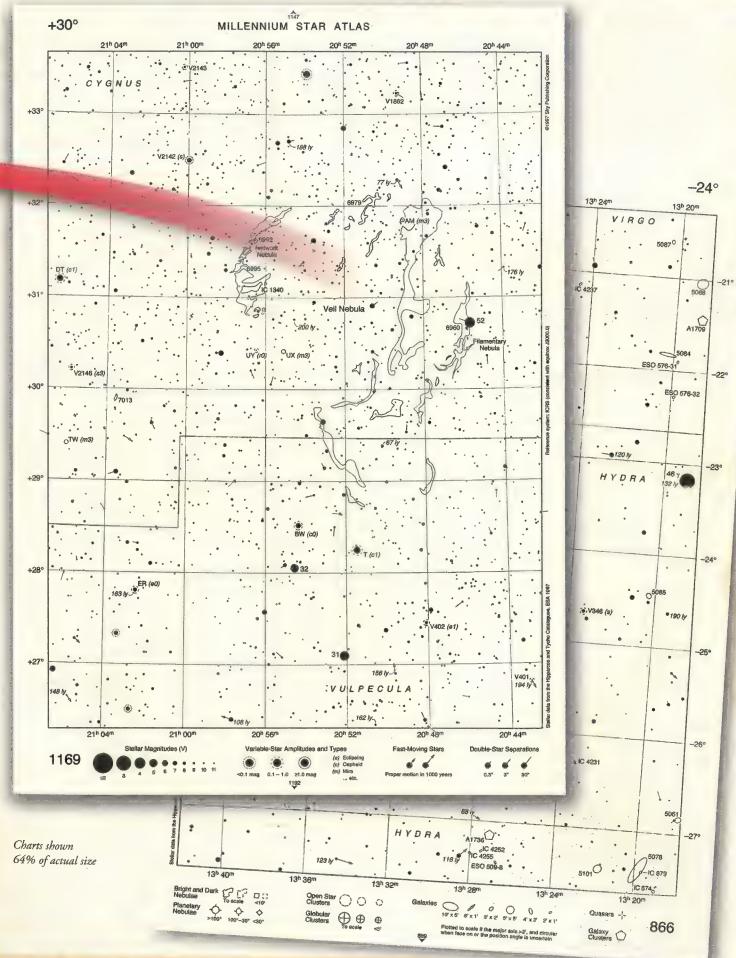
# **About Hipparcos**

In June 1997 the European
Space Agency (ESA) published the
long-awaited results of its Hipparcos
astrometry mission. Launched in 1989,
the Hipparcos satellite spent more than
three years measuring stellar positions,

brightnesses, and distances with unprecedented accuracy. After several additional years of painstaking data analysis, project astronomers have now begun to share the scientific fruits of this historic mission with the world.

The Hipparcos Catalogue offers milliarcsecond astrometry and millimagnitude photometry for more than 118,000 stars. The Tycho Catalogue provides data for more than a *million* stars with precisions measured in tenths to hundredths of an arcsecond or magnitude. Between them these catalogues reveal thousands of new variables and multiple stars. As the first stellar databases made from space-based observations, Hipparcos and Tycho will remain the definitive astrometric and photometric catalogues for many years to come.





Fax 617-864-6117 24 hours a day!

# TELESCOPES & TELESCOPE MAKING

#### 1 • Making Your Own Telescope

By Allyn Thompson

Few experiences are more satisfying than probing the heavens with a telescope you've made yourself. This classic book tells you how to do just that with basic instructions for making a 6-inch reflector. Learn how to grind, polish, and test a mirror. 211 pages, 5½ by 8½ inches, hardcover.

46123 . . . \$14.95

#### 2 • Build Your Own Telescope, 2nd Edition

By Richard Berry

Learn how to build any of five different telescopes using readily available materials and commercial optics. Berry provides step-by-step instructions for making scopes ranging from 4 to 10 inches in aperture, including a refractor and both equatorial and alt-azimuth (Dobsonian) reflectors. 276 pages, 8 by 10½ inches, hardcover.

84761 . . . \$24.95

### 3 • How to Make a Telescope, 2nd Edition

By Jean Texereau

For 30 years the first edition of this book was considered to be the best guide to making a Newtonian telescope. The latest edition adds chapters on making a Cassegrain instrument. 424 pages, 6 by 9 inches, hardcover.

96042 . . . \$19.95

#### 4 • Amateur Telescope Making 1, 2, 3

By Albert G. Ingalls

When amateur telescope making became popular in the United States earlier this century, most would-be "glass pushers" had to learn what they could through word of mouth. Eventually ATM guru Albert Ingalls collected the wisdom of the movement's founders into "the ATM books," a three-volume work that became an instant classic and served as the bible of telescope makers until it went out of print about a decade ago. Now it's back — and better than ever! The text has been rearranged and augmented with new material, and the tables of contents and indexes have been expanded manyfold for ease of use. Here's what you get in this unparalleled resource:

- ATM 1 (576 pages, 272 illustrations): Mirrors for Newtonian telescopes, optical testing, workshop wisdom, observatory buildings.
- ATM 2 (576 pages, 263 illustrations): Refractors, telescope mechanics, telescope adjustments, binoculars, Schmidt cameras, optical flats.
- ATM 3 (624 pages, 263 illustrations): Optical production methods and machinery, eyepieces and small lenses, optical coatings and coating equipment, the eye and the atmosphere, other optical instruments, equipment for solar observing.

Each volume 6 by 9 inches, hardcover.

ATM01 . . . \$24.95 • ATM02 . . . \$24.95 • ATM03 . . . \$24.95

#### 5 • Advanced Telescope Making Techniques

By Allan Mackintosh

Nearly 20 years of the Maksutov Club circulars covering all aspects of telescope making have been edited down into these two volumes. Each imparts hundreds of little-known ideas and techniques. 320 pages each, 6 by 9 inches, hardcover.

96115 Vol. 1: Optics . . . \$24.95 • 96123 Vol. 2: Mechanical . . . \$24.95

#### 6 • Telescope Building with John Dobson Videotape

Telescope guru John Dobson, founder of the San Francisco Sidewalk Astronomers and originator of the elegant telescope mounting bearing his name, offers step-by-step instructions for making a user-friendly, low-cost Newtonian reflector. 90 minutes.

VDOB1 VHS (NTSC) . . . \$39.95 • VDOB2 PAL . . . \$39.95



# **TELESCOPES & TELESCOPE MAKING**



### 7 • Eyes on the Universe: The Story of the Telescope New!

By Patrick Moore

The history of the telescope parallels revolutions in scientific thought and advances in astronomical discovery. In this unique perspective on our astronomical heritage, Britain's foremost science popularizer traces the development of the telescope from the earliest optical devices through the saga of the Hubble Space Telescope. Based on the 40th anniversary program of The Sky at Night, the author's popular TV series. 114 pages, 6 by 9½ inches, softcover.

61640 . . . \$19.95

#### 8 • Star Ware

By Philip S. Harrington

The subtitle says it all: "The Amateur Astronomer's Guide to Choosing, Buying, and Using Telescopes and Accessories." It's a user-friendly discussion of recent developments in equipment for amateurs. Harrington compares many commercial telescopes, noting which are best suited for different purposes. He covers everything — even the best bug sprays and long underwear! 373 pages, 71/4 by 101/4 inches, softcover.

76719 . . . \$24.95

### 9 • Star Testing Astronomical Telescopes A bestseller!

By Harold Richard Suiter

The star test is a powerful but very simple way of determining the optical quality of any astronomical telescope, as well as diagnosing specific aberrations. This book uses computer-generated images to show you clearly how various telescope problems reveal themselves in a star test. Then it tells you how to fix many of the most common aberrations. 376 pages, 6 by 9 inches, hardcover.

96441 . . . \$24.95

#### 10 • Small Astronomical Observatories

Edited by Patrick Moore

Tired of dragging your telescope in and out of doors? Maybe it's time to build a permanent shelter for it. Here two dozen amateur and professional astronomers share their designs and experiences to help you choose a suitable approach and succeed with a minimum of frustration. Learn how to build a roll-off roof observatory, a roll-away shed, or a rotating dome. Illustrated with dozens of black-and-white photos and diagrams. 229 pages, 6 by 91/4 inches, softcover.

99136 . . . \$32.95

#### 11 • Telescopes and Techniques

By Christopher R. Kitchin

Anyone wanting to learn about telescopes, how they work, how to use them, and how to choose a telescope for his or her own use will appreciate this concise introduction to practical astronomy. Three well-illustrated sections cover telescopes and optics, positions and motions in the sky, and observing techniques and detectors. Both novices and experienced amateurs will find this book an invaluable guide to the "nuts and bolts" of amateur astronomy. 204 pages, 6 by 91/4 inches, softcover.

98989 \$24.95

#### 12 • Sundials: History, Theory, and Practice

By René R. J. Rohr

Keep time the natural way with help from this newly reprinted classic by a former ship captain. After reviewing the history of sundials, the author showcases numerous examples of the many different types: classical sundials, inclined dials, solar calendars, analemmatic dials, Moon dials, and others. Profusely illustrated with photos and diagrams, the book also guides you through the design and construction of your own sundials. 142 pages, 11 by 8 inches, softcover.

91391 . . . \$11.95



#### 1 • The Blue Planet Globe New!

This striking objet d'art by Joseph Z. Niesyn transforms an ordinary 16-inch Earth globe into a marvelous astronomical teaching and learning tool. Set inside a smoked-Plexiglas box, the globe recreates the appearance of our home world floating and spinning in space. Just as in nature, the illumination changes with the seasons — you can actually see how different locations on Earth receive different amounts of sunlight throughout the year, or simulate sunrise and sunset from any location! 17½ by 17½ by 23 inches; minimal assembly required.

Note: This item is custom built and shipped to the customer directly from the artist's studio by United Parcel Service. Please allow 4 weeks for delivery.

**BLUEGLOBE . . . \$595.00** 

#### 2 · Moon Map

Our map of the Moon's near side identifies 300 craters by name, plus dozens of other features. The Moon is shown south up, the way it appears in most astronomical telescopes. (If your scope-eyepiece configuration gives a north-up view, simply turn the map upside down.) Lunar disk is 10½ inches in diameter. Great for use with binoculars and small telescopes.

S0003 . . . \$2.95

Bulk discounts are available.

#### 3 • Mirror-Image Moon Map

No more mental gymnastics! We've flipped our Moon Map left to right to show a mirror-reversed south-up lunar disk, as it appears in telescopes that have an odd number of reflections. (If your scope-eyepiece configuration shows the Moon mirror-reversed with north up, simply turn this map upside down.)

S0071 . . . \$2.95

Bulk discounts are available.

#### 4 • Giant Map of the Moon

A beautiful, shaded-relief composite of the Moon's near side based on observatory photographs, plus an artist's rendition of the lunar far side. Hundreds of prominent features are labeled. On the back you get an illustrated guide to the Earth-Moon system and a brief history of lunar exploration. 5 by 10 inches; unfolds to 54 by 39 inches.

00014 . . . \$14.95

#### 5 • Lunar Quadrant Maps

These highly accurate maps from the University of Arizona's Lunar and Planetary Laboratory depict all craters at least 2 miles in diameter, as well as rilles, faults, and maria on the Moon's near side. Includes thousands of names and letter designations. Our top choice for use at the telescope. Set of four maps, each 23 by 27 inches; shipped rolled in a sturdy cardboard tube.

46239 . . . \$13.95

#### 6 • NASA Moon Globe

With this detailed 12-inch globe you can explore the Moon's many craters, "seas," and mountains, including those out of view on the lunar far side. Comes with a plastic base and informative booklet.

S0059 . . . \$43.95

#### 7 • Mars Map

This Mercator projection combines albedo markings with thousands of craters, mountains, and other surface features mapped by Mariner 9, many of which are labeled. *Unfolds to 39 by 40 inches*.

\$1961 . . . \$8.95

#### 8 • The Sky & Telescope Mars Globe

Celebrate the resumption of our robotic exploration of Mars with our 12-inch scale model of the red planet, which depicts more than 100 identified topographic features as well as the major bright and dark regions visible from Earth. It was produced in cooperation with NASA and the U.S. Geological Survey. Comes with a clear pedestal and an information booklet.

39214 . . . \$84.95

#### 9 • Mars PlanetScape Poster New!

Follow along on your Mars poster as the latest round of Mars exploration gets under way! This richly detailed topographic satellite map of the red planet is based on Viking orbiter data. Features such as Valles Marineris and Olympus Mons stand out clearly in this attractive, true-color wall chart. 36 by 24 inches; shipped rolled in a sturdy cardboard tube.

MARSCAPE . . . \$13.95

#### 10 • DeepMap 600 New!

Your road map to the heavens! DeepMap 600 gives the positions for 600 of the finest celestial sights in the Northern Hemisphere on a giant, full-color star map plotted and drawn by world-renowned star mapper Wil Tirion. Color-coded symbols help you locate galaxies, nebulae, star clusters, and interesting double and variable stars. The accompanying text offers tips on using the map, along with general observing hints. Covers the sky from declination  $+70^{\circ}$  to  $-60^{\circ}$ , with a map of the northern circumpolar region on the back. Keep one copy in your telescope case, and another in your car's glove box!  $4\frac{3}{4}$  by  $10\frac{1}{2}$  inches; unfolds to 32 by 18 inches.

DEEPMAP . . . \$13.95

#### 11 • BAA Chart of the Heavens

By Wil Tirion

The British Astronomical Association's panoramic wall chart shows the entire night sky, divided into north and south polar regions and equatorial zones. Celestial cartographer Wil Tirion has plotted stars down to magnitude 5.5 and used symbols to mark the positions of double and variable stars, clusters, nebulae, and galaxies. 27 by 19 inches; shipped rolled in a sturdy cardboard tube.

S0032 . . . \$5.95

#### 12 • The Sky & Telescope Venus Globe

Our 12-inch scale model of Venus is based on radar data from the Magellan orbiter, which mapped the planet's surface from 1990 to 1994. It is color coded to represent elevation, and all major landforms are labeled. Produced in cooperation with NASA and the U.S. Geological Survey. Bonus! Each globe comes with "Exploring Venus," a 24-page reprint from Sky & Telescope. Explore craters, faults, lava plains, and bizarre "pancake" domes — in eye-popping 3-D! Includes two pairs of 3-D glasses.

VENUS . . . \$94.95

#### 13 • The Night's Lights New low price!

This unusual two-way lighted globe is a real conversation-starter! When the internal light is off it's a detailed celestial globe. Click the light on and dozens of mythical constellation figures appear in glorious color! All 88 constellations are displayed on this 12-inch orb, which comes with a plastic base and semimeridian. Cord plugs into a 115-volt AC outlet.

S0061 . . . \$104.95 \$59.95

# 14 • Starship Earth: The Great Celestial Sphere

Visualize many basic astronomical concepts with this gorgeous 16-inch acrylic globe, newly revised and updated for the 21st century. More than 1,100 stars, deep-sky objects, and all 88 constellations are accurately depicted on a grid of right ascension and declination lines. A rotatable Earth globe, a Sun ball, and an adjustable horizon ring allow you to simulate the view of the heavens from anywhere on Earth at any time. New features include improved object positions based on *Sky Atlas 2000.0* and *Sky Catalogue 2000.0* (see pages 8–9) plus a translucent Milky Way. Comes with an attractive desktop stand and an expanded instruction manual by the late George Lovi and frequent *Sky & Telescope* contributor James Mullaney.

STSHP . . . \$394.95



#### MESSIER AND BEY 1 • The Messier Objects Poster A bestseller! We've put photographs of all 109 of Charles Messier's deep-sky delights on this handsome wall poster. Complementing the crisp black-and-white images is brief background information about the objects, as well as three quick-reference tables that classify them by constellation, coordinates, and object type. Turns any wall into a deep-sky showcase! 24 by 36 inches. 50066 . . . \$9.95 2 • Sky & Telescope's Messier Card Redesigned and updated, this quick-reference data card lists the positions (equinox 2000.0), sizes, and magnitudes of all 109 Messier objects, plus 20 additional deep-sky gems. Perfect for Messier marathoners! Optional laminated finish protects it indefinitely against moisture and wear. 12 by 9 inches. **S001L Laminated . . . \$3.95** S0001 Unlaminated . . . \$2.50 Bulk discounts are available. 3 • The Messier Album By John Mallas and Evered Kreimer For each of Messier's star clusters, nebulae, and galaxies, you'll find modern and classical descriptions of its visual appearance, a photograph, a finder chart, and interesting "astro-facts." Includes an intro-MESSIER CARD ductory chapter by historian of science Owen Gingerich. 248 pages, 6 by 9 inches, hardcover. 46042 . . . \$21.95 4 • Messier Marathon Observer's Guide By Don Machholz Log all the Messier objects in a single night! The Messier Marathon a mad dash from target to target lasting from dusk to dawn has become an annual rite. It is possible only in late March and early April, when the Sun lies in a part of the zodiac devoid of Messier objects. This handy guidebook from a veteran comet hunter and one of the challenge's originators tells how to plan your search sequence, lists the best dates each year through 2019, and includes detailed finder charts specially designed and ordered for marathoners. 97 pages, 8½ by 11 inches, spiralbound. 46050 . . . \$12.00 5 • Beyond Messier: The Caldwell Catalog By Patrick Moore and M. Barlow Pepin Beloved English astronomer Patrick Moore introduces his Caldwell **OBSERVER'S GUIDE** list, and M. Barlow Pepin elaborates on it, in this 8-page reprint (re-HANDBOOK AND ATLAS vised and updated) from the December 1995 Sky & Telescope. It's the definitive guide to 109 deep-sky treasures that Messier overlooked. Take the Caldwell Challenge: see how many of these telescopic targets you can view from your favorite observing site. Order copies for every-BEYOND MESSIER: one in your astronomy club or classroom! 81/2 by 11 inches, 8 pages. ete Guide To Running CALDR . . . \$3.95 ALDWELL Bulk discounts are available. By Don Machholz 6 • Sky & Telescope's Caldwell Card Modeled after our popular Messier Card, this handy observing aid charts Sky & Telescope's

Modeled after our popular Messier Card, this handy observing aid charts the location of each object on an all-sky map on one side and tabulates the positions (2000.0), sizes, and apparent magnitudes of the objects on the other side. Optional laminated finish protects it indefinitely against moisture and wear. 12 by 9 inches.

CCARL Laminated . . . \$4.95 CCARU Unlaminated . . . \$3.50

Bulk discounts are available.

CALDWELL CARD

# S&T OBSERVER'S GUIDES

Books in this exciting series cover topics of special interest in amateur astronomy, with an emphasis on practical observing. Each is an indispensable reference, written by an expert in the field. Series editor: Leif J. Robinson, Editor in Chief, Sky & Telescope.



### 7 • City Astronomy

By Robin Scagell

Amateur astronomers who live in light-polluted cities can enjoy observing without driving hours into the countryside in search of pitch-black night skies. After discussing the impact of urban lighting on recreational astronomy, this book focuses on solutions. Includes:

- spotting the right weather conditions for optimal observing
- basic telescope types and their usefulness in the city
- a review of light-pollution filters and other helpful accessories
- types of celestial objects that are easy to see from cities and suburbs
- equipment for astrophotography and digital imaging. 176 pages, 6 by 91/4 inches, softcover.

46751 . . . \$18.95

#### 8 • Meteors

By Neil Bone

Glimpsing occasional "shooting stars" can be exhilarating, and recording them on many nights can provide a lifetime of rewards. The amateur astronomer who wants to start a program of meteor observation will find all the necessary details here. Includes:

- · the origins and science of meteors
- · a brief history of meteor studies
- naked-eye meteor watching and record-keeping
- a season-by-season calendar of annual meteor showers.

176 pages, 6 by 91/4 inches, softcover.

46670 . . . \$18.95

#### 9 • Astrophotography: An Introduction

By H. J. P. Arnold

Capturing the night sky in photographs is often assumed to be the domain of specialists, beyond the capability of the average amateur. Now, in *Astrophotography*, H. J. P. Arnold opens this seemingly forbidding endeavor to anyone with an interest in photography. He guides the reader through:

- choosing and using a camera
- getting the best out of black-and-white and color film
- photographing the Sun, Moon, planets, meteors, comets, stars, and satellites, with or without a telescope
- capturing rainbows, halos, and other atmospheric phenomena
- how to protect your film and develop pictures in a hotel room
- processing astrophotos at home.

192 pages, 6 by 91/4 inches, softcover.

46735 . . . \$18.95

# 10 • The Deep Sky: An Introduction New!

By Philip S. Harrington

Here is the perfect reference for anyone who owns a telescope or a pair of binoculars but doesn't know what to look for amid the constellations. Deep-sky aficionado Harrington surveys the best double and multiple stars, variable stars, open and globular clusters, nebulae, and galaxies. Then he explains how to find them and what you'll see when you do. Includes:

- an introduction to the wide variety of observable deep-sky objects
- 36 full-page sky charts showing all the objects discussed in the text
- · historical background on the most popular deep-sky catalogs
- suggestions for what equipment to use for different types of observations
- detailed descriptions of more than 300 of the finest deep-sky targets
- "eyepiece impressions" sketches that show what clusters, nebulae, and galaxies *really* look like through a small telescope
- lists of books, software, and equipment dealers for the deep-sky enthusiast
- more than 100 superb black-and-white photographs.

272 pages, 6 by 91/4 inches, softcover. Available in December 1997.

46808 . . . \$24.95

# 1 • Turn Left at Orion, 2nd Edition

By Guy Consolmagno and Dan M. Davis

Are you just starting out in astronomy and looking for an observing guide designed for you and your small telescope? Look no further! This newly revised guidebook — with tables of information accurate through A.D. 2006 — contains viewing tips as well as clear instructions on how to find 100 interesting night-sky objects. It also offers realistic sketches of what you will see in the eyepiece. 205 pages, 9 by 11 inches, hardcover.

82119 . . . \$24.95

# 2 • Cambridge Guide to the Stars and Planets New!

By Patrick Moore and Wil Tirion

Need a good field guide on your next viewing session? This comprehensive handbook to the stars and planets is a great addition to your traveling astronomy library. It features Wil Tirion's exquisitely-drafted charts of the stars in all 88 constellations. Included are the brighter nebulae and galaxies, as well as clear explanations of the more interesting objects. This useful compendium includes a concise 9-chapter overview of astronomy and is perfect armchair reading for those nights when you're clouded out! 256 pages, 5 by 73/4 inches, softcover.

# 3 • Burnham's Celestial Handbook

By Robert Burnham, Jr.

This three-volume travelogue of the cosmos is a modern classic. Following an introduction for beginning observers are 2,138 descriptive pages on thousands of stars and deep-sky objects within reach of 2-inch or larger telescopes. Organized alphabetically by constellation, each chapter includes tables of double and multiple stars, variable stars, star clusters, nebulae, and galaxies, as well as detailed articles and essays. Hundreds of charts and diagrams; more than 300 photographs. Each volume 6 by 9 inches, softcover.

3567X Vol. 1: Andromeda Through Cetus . . . \$14.95 35688 Vol. 2: Chamaeleon Through Orion . . . \$14.95 36730 Vol. 3: Pavo Through Vulpecula . . . \$14.95 Special offer: Buy all three volumes and save \$4.85! C0003 Vols. 1, 2 & 3 . . . \$40.00

# 4 • Star-Hopping for Backyard Astronomers A bestseller!

By Alan M. MacRobert

Sky & Telescope's Alan MacRobert explains how to maneuver among recognizable star patterns to locate intriguing but inconspicuous celestial objects nearby. He then takes you on 14 star-hop safaris in the Northern Hemisphere to hunt down astronomical big game — 160 objects of varying difficulty. Each star-hop, adapted from Sky & Telescope, includes a detailed map, object descriptions, and photos. Introductory chapters cover how to choose and use a backyard telescope, find your way around the sky, read star charts, and observe faint objects. 160 pages, 9 by 11 inches, hardcover.

46689 . . . \$22.95

#### 5 · Atlas of the Moon

By Antonín Rükl

Have you seen all that the Moon has to offer? This atlas contains 76 exquisitely detailed, fully labeled, pen-and-airbrush maps of the Moon's near side, plus 50 close-up photographs. Each is accompanied by brief descriptions of prominent formations and their historical namesakes. Get to know our nearest neighbor! 224 pages, 83/4 by 113/4 inches, hardcover.

35178 . . . \$34.95

# 6 • Advanced Amateur Astronomy New!

By Gerald North

This book is for backyard astronomers who want to move beyond elementary stargazing to more challenging projects. Author North, himself an accomplished amateur, reviews observing techniques, the fundamentals of practical astronomy, including telescope optics, atmospheric seeing, eyepiece designs, astrophotography, and electronic imaging, photometry, spectroscopy, and radio astronomy. Take your hobby to the next level! 7 by 10 inches, hardcover. 74307 . . . \$24.95

# 7 • Eclipse! New!

By Philip S. Harrington

Plan your eclipse chases into the next century with this complete guide to nature's grandest spectacles. Experienced amateur astronomer and eclipse aficionado Phil Harrington gives solid advice about observing both solar and lunar eclipses, augmented with detailed accounts of what to expect during every such event to occur during the next 20 years. Spiced up with first-person anecdotes from the author and numerous other wellknown amateur astronomers, this handy guidebook is sure to give the "eclipse bug" to anyone who hasn't caught it already! 284 pages, 71/2 by 91/4 inches, softcover.

### 8 • Solar Astronomy Handbook

By Rainer Beck, Heinz Hilbrecht, Klaus Reinsch, and Peter Völker

The original German edition of this comprehensive observer's guide to the Sun was an instant classic. Now available in English for the first time, it has been revised, updated, and more lavishly illustrated with black-and-white diagrams and photographs. Includes a buyer's guide to telescopes and accessories for solar astronomy, an inspiring discussion of the many types of observations that are within range of amateurs, tips for planning eclipse expeditions, and an extensive bibliography. 516 pages, 61/4 by 91/4 inches, hardcover.

96476 . . . \$24.95

# 9 • Fifty Year Canon of Solar Eclipses: 1986-2035

By Fred Espenak

Find out when and where every eclipse of the Sun — total, partial, or annular — will occur during the next few decades. General characteristics are listed for eclipses occurring between 1901 and 2100. Detailed world maps show paths of totality and annularity. For eclipses from 1986 to 2035, precise latitudes and longitudes along the eclipse centerline and northern and southern limits are given, and the regions of visibility of both partial and central phases are depicted on world globes. 278 pages, 81/2 by 11 inches, softcover.

4645X . . . \$14.95

# 10 • Fifty Year Canon of Lunar Eclipses: 1986-2035

By Fred Espenak

This book catalogs the general characteristics of every lunar eclipse from 1901 through 2100. Illustrations show the path of the Moon through Earth's shadow and the global visibility of each eclipse. Predicted contact times and other details are supplied for every lunar eclipse from now through 2035. Eclipse geometry, frequency, and other topics are also covered. 232 pages, 81/2 by 11 inches, softcover.

46581 . . . \$14.95

Special offer: Buy both canons and save \$4.95!

4668X . . . \$24.95

#### 11 • Hartung's Astronomical Objects for Southern Telescopes, 2nd Edition

By David Malin and David J. Frew

Many of the most spectacular and interesting celestial objects are found in the magnificent skies of the Southern Hemisphere. This recently revised, beautifully illustrated handbook will help you find and appreciate them, whether you live south of the equator year-round or just plan to visit. Includes a "southern Messier catalog" of deep-sky gems. 428 pages, 7 by 10 inches, hardcover.

54918 . . . \$64.95

# 12 • Light and Color in the Outdoors

By Marcel Minnaert

This beloved classic, translated and updated by Len Seymour, examines a wide range of "magical" everyday optical effects that can be observed with the naked eye. Minnaert explains atmospheric halos, the green flash of the setting Sun, rainbows, twilight, the colors of shadows, freak reflections, afterimages, contrast effects, black snow, mirages, and much more. Contains 80 new photographs, 52 in full color. 434 pages, 61/4 by 91/2 inches, softcover.

44133 . . . \$24.95



# 1 • RealSky CD (Mac, Windows) New!

Have the entire sky at your fingertips! This set of 20 CD-ROMs, produced by the Space Telescope Science Institute and the Astronomical Society of the Pacific, contains all the wide-field images from the historic Palomar Observatory Sky Survey and its southern extension from the Royal Observatory, Edinburgh. The northern set, on eight CD-ROMs, features red-light images from the north celestial pole down to a declination of  $-15^{\circ}$ . The southern set, on 10 CDs, features blue-light images from the south celestial pole up to the celestial equator. RealSky shows you the sky as it really appears through a telescope, with 1- to 2arcsecond resolution and revealing stars down to 19th or 20th magnitude. FITS-format images can be exported to other programs as bitmaps. A musthave for serious astronomy enthusiasts!

Requirements: PC: 486/66 MHz or Pentium processor, Windows 3.1/3.11 (Windows 95 or NT recommended), 16 MB RAM, SVGA monitor, CD-ROM drive; Mac: LCII (68040/25 MHz) or PowerMac, System 7.0 or higher, 16MB RAM, CD-ROM drive.

Northern Sky: REALSKYN . . . \$249.95 Southern Sky: REALSKYS . . . \$249.95

Order both and save \$50! RealSky CD (both hemispheres): REALSKY . . . \$449.95

#### 2 • RedShift 2 CD-ROM (Mac, Windows)

Award-winning RedShift has long been the program to get if you get only one, and version 2 makes it more so! Visually stunning and scientifically accurate, RedShift 2 takes you exploring through the universe. Witness the birth of a star or view the night sky as seen by the ancient Egyptians. Visit the Horsehead Nebula or hitchhike your way through the solar system. A major upgrade to the original RedShift, this program makes astronomy accessible to beginners and at the same time delivers the high accuracy required by serious astronomy enthusiasts. Includes an illustrated, animated astronomical dictionary.

- 250,000 stars; 40,000 deep-sky objects; 5,000 asteroids
- More than 700 glorious, full-screen celestial images
- Dynamic solar-system model with 3-D planets and moons
- Dozens of movies and animations, with sound and music.

Requirements: Windows: IBM compatible, 386SX CPU (486 or Pentium recommended), 8 MB RAM, 256-color SVGA display, Windows 3.1x/95, 2X CD-ROM drive, Windows-compatible sound card, mouse; Mac: Mac LCII or better with System 7.0 or higher (or Power Mac 6100 or better with System 7.1.2 or higher), 8 MB RAM, 2X CD-ROM drive, thousand-color display, QuickTime 2.0 or higher, mouse.

REDCD . . . \$45.95

#### 3 • TheSky Level IV, Version 4.0 (Windows)

The Sky combines speed and accuracy with an interface that's very easy to use. If your PC runs Windows 95 or NT, you can take full advantage of its enhanced capabilities with this 32-bit version of this bestselling program. And if you're still using Windows 3.1 (or 3.11), the Microsoft Win32s extension (included) lets you use TheSky with your familiar Windows environment. Features include:

- the Hubble Guide Star Catalog's 19 million stars and nonstellar objects
- more than 100,000 multiple and variable stars and deep-sky objects
- more than 750 color images of the planets and deep-sky objects
- isophotes (outlines) of nebulae and other extended objects
- enhanced star-chart printing
- animate solar-system objects; view eclipses and occultations
- accurately depict the night sky for any date from 4713 B.C. to A.D. 10,000, from any location on Earth.

The Sky works seamlessly with the Real Sky CD too; overlay The Sky's charts on real images of the cosmos! Watch Sky & Telescope for news of the forthcoming Mac version!

Requirements: IBM-compatible PC with 486DX/33 or better CPU, Windows 95/NT (or Windows 3.1/3.11 with DOS 5.0 or higher), 8 MB RAM, math coprocessor, 35 MB free hard-disk space, CD-ROM drive, VGA or better display, mouse.

4486W . . . \$229.95





### 4 • Comet Explorer (Windows) New!

Explore the nature of comets with this interactive multimedia CD-ROM from Cyanogen Productions! From Halley to Hale-Bopp, you'll find a variety of images, animations, and breathtaking time-lapse sequences of the latest and greatest comets. A comet-hunting simulation and video clips of successful cometseekers talking about their hobby help you learn to be a comet-hunter too. As a bonus, the powerful shareware planetarium software *Earth-Centered Universe* is included on the disc too!

Requirements: IBM-compatible PC with 486 or better CPU (Pentium recommended), 8 MB RAM, Windows 3.1/95/NT, CD-ROM drive, 16-bit or 24-bit color video recommended.

COMETEX . . . \$29.95

#### 5 • Starry Night Deluxe (Mac)

The most talked-about astronomy program of the year is now even more powerful and easy to use. It will show you what's up in the sky as seen from any planet or moon at any time, take you on a virtual tour of the solar system, and even control your Meade LX200 telescope. Use it to plan your next observing trip, print customized star charts, and learn about celestial mechanics using its unique Orbit Editor. Starry Night Deluxe features:

- nearly 20 million stars and deep-sky objects from the Hubble Guide Star Catalog
- · photorealistic planets and close-up images of the Messier objects
- multiple viewing windows: watch an eclipse from the Sun, Earth, and Moon at once!
- add artificial satellites and newly discovered comets and asteroids with the orbit editor
- follow Comet Hale-Bopp's progress through the solar system
- generates stunning QuickTime movies of astronomical events.

Watch Sky & Telescope for news of the forthcoming Windows 95 version!

Requirements: System 7.0 or later, 8 MB RAM, CD-ROM drive, monitor capable of displaying thousands (preferably millions) of colors.

SNDCD . . . \$89.95

# 6 • Voyager II, Version 3.0 (Mac)

The most popular planetarium program for Macintosh computers, *Voyager II* is unequaled in speed, accuracy, versatility, and ease of use. Tour the solar system to see Jupiter's whirling moons, Comet Hale-Bopp, or a panoramic view of the Milky Way. Pinpoint the locations of black holes and quasars.

- 259,000 SAO stars; 40,000 double and variable stars; 20,000 deep-sky objects
- Dual sky display, satellite tracking, enhanced printing, and optional telescope control
- · thousands of comets and asteroids
- 64 color images of celestial objects; add your own
- Create your own QuickTime movies of celestial events
- CD-ROM contains the 19 million celestial objects in the Hubble Guide Star Catalog and more than 800 astronomical images.

Watch Sky & Telescope for news of the forthcoming Windows 95 version!

Requirements: Color 68K Macs or Power Macs, including portables. System 7.0 or later. Minimum 2 MB RAM, 5 MB free disk space,  $3\frac{1}{2}$  disk or CD-ROM drive. Color display recommended. Accelerated for Power Macintosh.

S0104 . . . \$119.95

# 7 • Astroware 1 CD-ROM (DOS, Windows, OS/2, Mac, UNIX)

First in a new series of software tools for professional and amateur astronomers, this ISO-9660 disc contains thousands of shareware ("try-before-you-buy") and freeware files for PCs, Macs, and UNIX workstations. Includes source code and text files, as well as programs to plot star charts, process CCD images, plan solar-system and deep-sky observations, design telescope optics — you name it!

76034 . . . \$39.95

3

DE MINOR PLANET NAME:

ASTRONOMY

DICTIONARY

THE LINIVERSE AT

YOUR FINGERTIPS

1 • The Cambridge Astronomy Dictionary New!

This compact, easy-to-read dictionary has more than 1,000 clear and up-to-date entries, all extensively cross-referenced. Diagrams and tables of data, abbreviations, and symbols complement the definitions. 240 pages, 53/4 by 83/4 inches, softcover.

89916 . . . \$14.95

# 2 • Star Names: Their Lore and Meaning

By Richard Hinckley Allen

An essential reference for star lovers, this Victorian-era treasure traces the heritage and history of all the constellations, their important stars, and other celestial bodies. 594 pages, 51/2 by 81/2 inches, softcover.

10790 . . . \$12.95

# 3 • Dictionary of Minor Planet Names, 3rd Edition New!

By Lutz D. Schmadel

In this authoritative book you'll find the names and meanings of more than 5,000 asteroids. This collection provides interesting historical insight into the astronomers who named their discoveries after gods, goddesses, philosophers, musicians, scientists and others. 937 pages, 61/4 by 91/2 pages, hardcover.

17477 . . . \$119.00

# 4 • History of Astronomy: An Encyclopedia New!

Edited by John Lankford

This sweeping volume offers more than 300 carefully researched and easy-to-read essays on the development of all major fields in astronomy. Surveys of astronomical research around the world, biographies of important individuals, and histories of major institutions round out this detailed compilation. 594 pages, 71/4 by 101/4 inches, hardcover.

### 5 • The Great Copernicus Chase and Other Adventures in Astronomical History

By Owen Gingerich

Join Harvard astronomer-historian Gingerich in his search for all existing copies of Copernicus's monumental De revolutionibus. This title essay opens an engaging anthology of 36 episodes in astronomical history, including the origin of the zodiac, the first photograph of a nebula, and the discovery of Mars's moons. 320 pages, 7½ by 9¾ inches, hardcover.

26885 . . . \$29.95

#### 6 • The Astronomical Scrapbook

By Joseph Ashbrook

For 23 years Ashbrook's "Astronomical Scrapbook" column in Sky & Telescope took readers down little-known byways of astronomy, profiling the geniuses, toilers, and crackpots who traveled them. This text gathers 91 of his best articles. 468 pages, 6 by 9 inches, hardcover.

46247 . . . \$18.95

# 7 • Astronomy Explained New!

By Gerald North

If you've always wanted to learn more about astronomy but didn't want to wade through a mammoth introductory textbook, here's your solution! It's a complete, self-contained introductory course in astronomy designed for individual exploration or classroom use. The author covers a variety of topics in language that's easy-to-understand yet precise. 330 pages, 61/4 by 91/4 inches, softcover.

61365 ... \$24.95

#### 8 • The Universe at Your Fingertips

Edited by Andrew Fraknoi

This publication collects dozens of astronomy-related activities and resources into a single giant guide for astronomy educators. Anyone who has ever thought of volunteering to teach some astronomy classes at the local school will do well to base the curriculum on the material contained in this comprehensive teaching and learning aid. It's also a great source of ideas for Astronomy Day activities. 813 pages, 81/2 by 11 inches, loose-leaf (fits in a 4-inch three-ring binder, not included).

33007 . . . \$29.95

# REFERENCES & RESOURCES

### 9 • The Astronomy and Astrophysics Encyclopedia

Edited by Stephen P. Maran

This hefty reference work, with more than 400 articles, brings you lucid explanations by world-class scientists. Advanced amateurs, writers, teachers, and college students will find it an indispensable resource, well worth the price. 971 pages, 81/2 by 11 inches, hardcover.

63643 . . . \$139.95

# 10 • Encyclopedia of Planetary Sciences New!

Edited by James H. Shirley and Rhodes W. Fairbridge

This authoritative compilation presents the state-of-the-art in planetary atmospheres and interiors, impact cratering, remote-sensing techniques, and all other aspects of planetary science. It also chronicles the history of the field and includes biographies of pioneering planetary astronomers and researchers in related disciplines. Illustrated with more than 450 line drawings, 180 black-and-white photographs, and 63 color illustrations. 990 pages, 83/4 by 111/4 inches, hardcover.

### 11 • The New Solar System, 3rd Edition A bestseller!

Edited by J. Kelly Beatty and Andrew Chaikin

This is a comprehensive, engaging account of our understanding of the solar system. Twenty-six planetary scientists examine the Sun, the planets and their moons, asteroids, comets. Profusely illustrated with planetary maps and the best photographs available. 326 pages, 81/4 by 11 inches, hardcover.

46557 . . . \$29.95

#### 12 • The NASA Atlas of the Solar System

By Ronald Greeley and Raymond Batson

The cartographic results of four decades of solar-system exploration are gathered here into an unparalleled collection of color and black-andwhite maps. Nearly every planet, moon, and small body that has been visited by a space probe or resolved by an orbiting telescope is included: Mercury, Venus, the Earth and Moon, Mars and its satellites, the gas giants of the outer solar system (including their moons and rings), Pluto, and many comets and asteroids. More than 360 images and maps! 380 pages, 12 by 18 inches, hardcover.

61272 . . . \$149.95

# 13 • Views of the Solar System New!

By Calvin J. Hamilton

Take an exciting voyage of discovery through the solar system using your home computer and this hypertext-formatted CD-ROM. Using your Web browser (no Internet connection required) you can visit planets, moons, rings, comets, and asteroids - all with the click of a mouse. Includes a chronology of planetary exploration, extensive background information, video clips, glossary, bibliography, and special resources for educators.

Requirements: Macintosh: 68030 processor or faster; System 7.0 or higher; 4 MB RAM; 8 MB harddisk space; 8-bit graphics (256 colors, 640-by-480 resolution); CD-ROM drive. Windows: IBM-PC compatible 40-MHz 386DX or better; Windows 3.1 with DOS 6.0 or Windows 95; 4 MB RAM; 8 MB hard-disk space; 256-color display adapter and monitor; CD-ROM drive.

#### 14 • Astronomical Algorithms

By Jean Meeus

This handbook explains how to do myriad astronomical calculations with a calculator or computer. Fifty-five chapters cover everything from determining the tilt of Saturn's rings for a given date to precessing a star's coordinates for any epoch. Most formulas are presented with a numerical example. 429 pages, 6 by 9 inches, hardcover.

96352 . . . \$24.95

# 15 • Mathematical Astronomy Morsels New!

By Jean Meeus

Interested in the frequency of blue moons? Wonder how often the planets group in the same area of the sky? Chances are you'll find what you're looking for in this masterful volume devoted to the detection of patterns and cycles in sky phenomena. Meeus offers detailed investigations into everything from planetary motions and lunar phases to the variability of sunspots and the dates of Easter. 379 pages, 61/4 by 91/4 pages, hardcover.

96514 . . . \$24.95



Fax 617-864-611724 hours a day!

# HUBBLE SPACE TELESCOPE

# 1 • Hubble Vision: Astronomy with the Hubble Space Telescope A bestseller!

By Carolyn Collins Petersen and John C. Brandt

The Hubble Space Telescope has revealed spectacular and intriguing details of every celestial object upon which it has gazed. This book comprehensively reviews the most exciting science to come from the observatory during its first five years in orbit. Petersen, a talented science writer, and Brandt, one of the Hubble project's senior scientists, present dramatic images and compelling spectra of planets, comets, stars, nebulae, and galaxies, all supported by detailed and authoritative narrative. 256 pages, 9½ by 11 inches, more than 100 color photographs and 50 black-and-white illustrations, hardcover.

96438 . . . \$39.95

2 • Hubble Library of Electronic Picturebooks (Mac, Windows) New!

Exploring the universe just became a whole lot more fun! This CD-ROM from the Space Telescope Science Institute contains 16 electronic picture-books of space images and artwork. Included are spectacular images and science from the Hubble Space Telescope and early Mars missions, views of Earth from orbit, detailed close-ups of the Moon from the Clementine spacecraft, Magellan's radar scans of Venus, space art by kids, and a lot more! Designed with a simple, elegant user interface, these picture-books present scientific information in an easy and understandable manner. Great for individual or classroom use.

System requirements: Macintosh: 68020 or greater processor, 2.5 MB of available RAM, System 7.1 or greater, and 8-bit (256-shade) color or gray scale display. PC: 386 or better processor, 5 MB RAM, Windows 3.1/3.11/95, 640-by-480-pixel 256-color video, sound support (ability to play WAV files).

**EPBOOKS . . . \$39.95** 

The following slide sets are great for lectures and presentations! Each comes with a booklet containing authoritative background information and detailed captions.

#### 3 • Hubble Space Telescope Slide Set 5

Here are 20 of Hubble's "best shots" from 1995 and 1996, including the gas pillars of the Eagle Nebula; the Hubble Deep Field; the Orion, Egg, and Hourglass nebulae; images of the outer planets; and more.

AS239 . . . \$26.95

#### 4 • Hubble Space Telescope Slide Set 6 New!

Thirty more striking images from Hubble's 1996 observations: Martian dust storms, edge-on views of Saturn's rings, a look into the heart of the Lagoon Nebula, galaxy clusters, black holes, gravitational lenses, Hubble's 100,000th exposure, and more.

HSTSIX . . . \$34.95

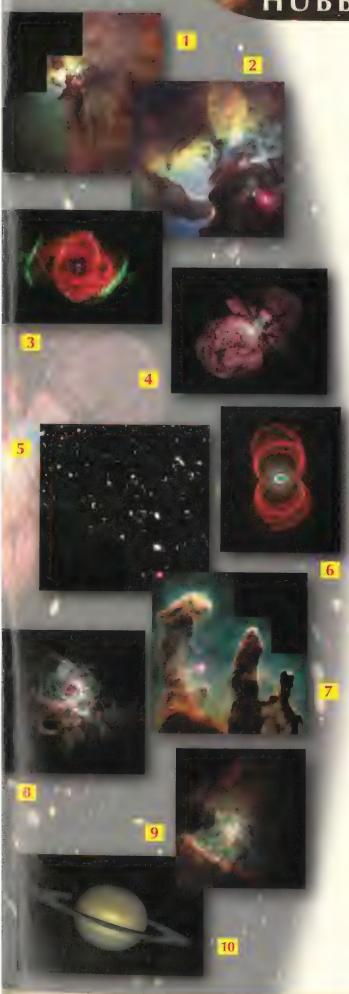
#### 5 • Starbirth in Serpens Poster Abestseller!

When Hubble captured a detailed close-up of starbirth in M16, the Eagle Nebula in Serpens, it also captured the imagination of millions of people around the world. The eerily three-dimensional image shows towering columns of cold, dusty gas spawning newborn stars, some of which are just emerging from their placental clouds. Now you can have your own copy of this glorious picture and hang it on your wall to share with family and friends. Our beautiful color poster is printed on high-quality paper and features not only the Hubble close-up but also a glorious wide-field photo of the Eagle Nebula, made by renowned astrophotographer David Malin with the Anglo-Australian Telescope. 36 by 24 inches.

SM16P...\$9.95

See our Hubble Deep Field poster on the back cover too!





# Unbelievable views!

SKY & TELESCOPE'S

# Spotlight Prints

Sky Publishing's exquisite 16-by-20-inch Spotlight Prints continue a long-standing tradition of bringing you the best photographic reproductions of the best images in astronomy. Among our most popular offerings are some of the Hubble Space Telescope's best shots, including our newest addition, the Lagoon Nebula. Beautify your home, office, or observatory and share the wonders of the universe with your family and friends. All Spotlight Prints are reproduced on high-quality Kodak paper and come with a description and instructions for care.

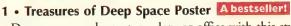
One print . . . \$24.95 Two or more prints . . . \$23.00 each

- 1 P0096 Lagoon Nebula (M8)
- 2 P0097 Lagoon Nebula Close-up (M8)
- 3 P0089 Cat's Eye Nebula (NGC 6543)
- 4 P0093 Dying Star Eta Carinae
- 5 P0087 Hubble Deep Field
- 6 P0091 Hourglass Nebula (MyCn 18)
- 7 P0086 Eagle Nebula Close-up (M16)
- 8 P0094 NGC 604 in M33
- 9 P0088 Orion Nebula Mosaic (M42)
- 10 P0092 Storm on Saturn



managas W

# IMAGES OF THE COSMOS



Dress up your observatory, den, or office with this stunning full-color poster showcasing 20 of the universe's best-known deep-sky wonders. The images were made by some of the world's most talented astrophotographers, and each one is accompanied by a short, descriptive caption. 24 by 36 inches.

X0195 . . . \$9.95

#### 2 • A View of the Universe

By David Malin

"Just buy a copy — everyone should have one." — Sky & Space

This lavish pictorial journey through deep space showcases the breathtaking images of renowned astronomical photographer David Malin. Using some of the world's largest telescopes and innovative photo-processing techniques, Malin has captured galaxies, nebulae, and star clusters in their natural colors. The photographs — more than 100 in all — are accompanied by engaging and informative captions. 288 pages, 93/4 by 11 inches, hardcover.

46662 . . . \$39.95

#### 3 • Aurora Poster

"One of the most beautiful posters this editor has ever seen."

— Association of Astronomy Educators Journal

The aurora, one of nature's most awesome sights, is displayed in photographs showing its many forms and colors. A diagram illustrates how and why auroras occur, and a *Sky & Telescope* reprint explains the science behind them. 34 by 24 inches.

S0069 . . . \$9.95

**Spotlight Prints** 

In addition to our popular collection of images from the Hubble Space Telescope (see page 27) Sky Publishing continues to produce other 16-by-20-inch Spotlight Prints of outstanding celestial photographs. All are reproduced on high-quality Kodak paper and come with a description and instructions for care. Additional subjects are also available: for a complete list, see SKY Online at http://www.skypub.com/catalog/images.html.

- 4 P0081 Andromeda Galaxy (M31)
- 5 P0095 Comet Hale-Bopp and the Milky Way
- 6 P0051 Moonrise

One print . . . \$24.95 • Two or more prints . . . \$23.00 each

In cooperation with the Lunar and Planetary Institute (LPI) in Houston, Texas, Sky Publishing is pleased to introduce four slide sets featuring some of the best color and black-and-white images of our solar system. Each comes with a booklet of captions penned by planetary scientists, along with suggestions for further reading.

# 7 • A Spacecraft Tour of the Solar System New!

Piloted and robotic exploration of our planetary system has revolutionized our knowledge of the Sun and its family of planets and smaller bodies. The images in this slide set, most of them from NASA space probes, illustrate the principal distinctive features of all nine planets and their largest natural satellites, along with the Sun itself, the main-belt asteroid Gaspra, and the nucleus of Halley's Comet. 40 slides, 28-page caption booklet; compiled by James R. Zimbelman (National Air and Space Museum).

STOUR ... \$29.95

#### 8 • The Red Planet: A Survey of Mars New!

Many different types of geologic features on Mars are illustrated, including tectonic structures, volcanoes, impact craters, landslides, and features formed or modified by ice and water. Also included are images of the red planet's two small moons, Phobos and Deimos, and of Martian meteorites. 40 slides, 28-page caption booklet; compiled by Walter S. Kiefer, Allan H. Treiman, and Stephen M. Clifford (LPI).

SREDP . . . \$29.95

# IMAGES OF THE COSMOS

### 9 • Clementine Explores the Moon New!

The 1994 Clementine mission tested a new type of "smaller, faster, better" spacecraft and returned a vast suite of scientific data from the Moon. Clementine produced a high-resolution global map of Earth's companion world, enabling planetary scientists to study the Moon's geology at an unprecedented level of detail. 36 slides, 20-page caption booklet; compiled by Paul D. Spudis (LPI).

SCLEM . . . \$29.95

#### 10 • Ancient Life on Mars??? New!

In August 1996 scientists announced that they had found evidence of past microscopic life on Mars. This evidence included bacteria-shaped "fossils" and organic molecules in the Antarctic meteorite ALH 84001, which is believed to have been blasted from the Martian surface millions of years ago. This slide set looks at Mars as a possible abode for life, meteorite collecting in Antarctica, ALH 84001 and its possible traces of Martian life, and NASA's current program of Mars exploration. 40 slides, 40-page caption booklet; compiled by Pat Dasch (National Space Society) and Allan Treiman (LPI).

SLIFE . . . \$29.95

# 11 • The Ultimate CCD Collection (Windows, Mac)

By Jack Newton and Don Parker

When you come across a "knock-your-socks-off" CCD image in Sky & Telescope, you often find Jack Newton's or Don Parker's name in the caption. Newton records deep-sky objects in glorious color using his 25-inch telescope in British Columbia, while Parker uses a 16-inch reflector to capture high-resolution views of solar-system objects from his Florida backyard. Now they have compiled more than 300 of their finest color CCD images of the Moon, planets, nebulae, and galaxies on one CD-ROM. All are supplied in 24-bit TIFF or JPEG format for maximum resolution and color definition, as well as in 8-bit bit-mapped format for quick looks. You also get time-lapse movies of Jupiter's rotation and Comet Hyakutake's motion against the starry background. Includes an image viewer for Windows; PowerMac users will need separate image-viewing or image-processing software (not included).

Requirements: Windows: IBM-compatible PC running Windows 3.1x/95/NT, 386 or better processor, 4 MB RAM, 2.5 MB of free hard-disk space, CD-ROM drive. Mac: Any color Power Macintosh equipped with software to display TIFF, JPEG, or bit-mapped images; CD-ROM drive.

ULTCD . . . \$29.95

#### 12 • Glorious Eclipses Slide Set

"Absolutely stunning!" — Astronomy Now

Experience the grandeur of the 1991 total solar eclipse and other eclipses from the past 25 years. Nineteen full-color slides, chosen from the best images submitted to Sky & Telescope, offer dramatic views of the Sun's corona, fiery prominences, and the diamond-ring effect. The set also includes images of annular and lunar eclipses, and unique "sequence" shots. Comes with an 8-page booklet of captions.

S0057 . . . \$24.95

#### 13 • Solar Eclipse Poster

This wall ornament combines the splendor and science of nature's grandest spectacle. Exquisite color photographs capture the beauty of both total and annular ("ring of fire") eclipses, while diagrams and captions detail the anatomy of these dramatic events. Includes a map of every solar eclipse from now through the year 2008. 24 by 36 inches.

X0196 . . . \$9.95

#### 14 • Astronomy: Anatomy of the Universe Poster A bestseller!

Thirty-five color photographs depict many of the different types of objects known to exist in the universe. Includes the planets, nebulae, star clusters, galaxies, a quasar, a total lunar eclipse, and a comet. 24 by 36 inches.

38234 . . . \$9.95



# **30**

# ASTRO IMAGING

### 1 • Astrophotography II

By Patrick Martinez

Sky shooters can quickly hone their photographic skills by following the advice and techniques in this book. Full of diagrams and photographs, it covers everything from piggyback to eyepiece-projection photography, and from focusing to reciprocity failure. 174 pages, 9 by 6 inches, hardcover.

96131 . . . \$18.95

See page 19 for Astrophotography: An Introduction by H. J. P. Arnold.

#### 2 · Choosing and Using a CCD Camera

By Richard Berry

This book puts all the fundamentals of charge-coupled devices into easy-to-understand terms. It covers chip basics, the six types of CCD images, preparing your telescope for CCD imaging, and how to take and calibrate an image set. Comes with software and sample images for use on an IBM PC-compatible computer. So there's no need to own a CCD camera to become familiar with what it takes to produce spectacular images! 96 pages, 8½ by 11 inches, softcover.

9639T with 31/2" DOS disk . . . \$29.95

#### 3 • Introduction to Astronomical Image Processing

By Richard Berry

Berry uses down-to-Earth language to describe how to unlock the information contained in astronomical images. Includes AstroIP image-processing software and 19 sample images on two disks. 96 pages, 8½ by 11 inches, softcover.

9632T with 31/2" DOS disks . . . \$29.95

Another great reference for the newcomers to electronic imaging is The Art and Science of CCD Astronomy, edited by David Ratledge, on the back cover. And for more advanced CCD users and do-it-yourselfers...

#### 4 • The CCD Camera Cookbook

By Richard Berry, Veikko Kanto, and John Munger

This book provides step-by-step instructions and DOS software for building and testing two 12-bit CCD cameras, at a fraction of the cost of commercial units. The Model 211 camera is adequate for imaging the Moon and planets, searching galaxies for supernovae, and doing stellar photometry. Model 245 is a great deep-sky camera. 176 pages, 8 by 11 inches, softcover.

9641T with 31/2" DOS disk . . . \$29.95

### 5 • A Practical Guide to CCD Astronomy New!

By Patrick Martinez and Alain Klotz

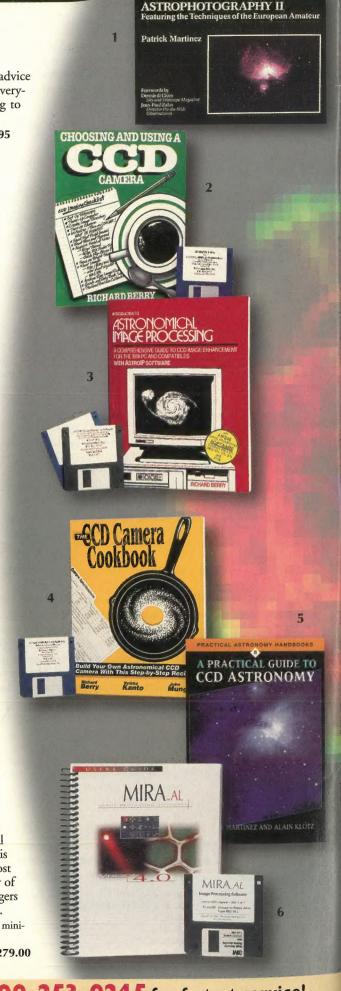
High-performance CCD cameras have opened an exciting window to the stars for thousands of amateur astronomers. Whether you own a CCD now or are contemplating buying one, this book offers tips on buying one, setting it up and using it. Packed with practical tips for the novice and experienced CCD user alike. 240 pages, 6 by 9 inches, softcover.

99504 . . . \$29.95

#### 6 • MIRA AL (Windows 95/NT) New version!

This is professional-level image-processing and analysis software for the amateur CCD user. It's terrific for squeezing the last bit of detail out of your images, but where it really shows off is in enabling you to extract valuable astrometry and photometry from your data. Its custom, menu-driven, graphical user interface is remarkably easy to learn. The hefty MIRA User's Guide is packed with useful tips describing professional techniques for getting the most out of your images. This is version 5.0, the newest entry in the popular family of MIRA programs. Find out why MIRA is used by more professional astro imagers than all other commercial astronomical image-processing programs combined. Requirements: IBM PC or compatible computer running Windows 95 or Windows NT 4.0; minimum 16 MB of RAM.

MIRAL . . . \$279.00



# INDEX

3-D Tour of the Solar System CD-ROM32	Exploring the Night Sky with Binoculars,	Precision Planet and Star Locator, Kennedal 5
AAVSO Variable Star Atlas, Scovil10	Chandler	Pupil Gauge
Advanced Amateur Astronomy, North20	Eyes on the Universe: The Story of the Telescope,	RealSky CD
Adv. Telescope Making Techniques, Mackintosh 14	Moore	Red Planet: A Survey of Mars Slide Set28
Amateur Telescope Making, Ingalls	Fifty-Year Canon of Lunar Eclipses, Espenak	RedShift 2 Software
Ancient Life on Mars??? Slide Set	Fifty-Year Canon of Solar Eclipses, Espenak 21	S&T Baseball Caps Order Form
Andromeda Galaxy Spotlight Print	Giant Map of the Moon	S&T Binders & Slipcases Order Form
Art and Science of CCD Astronomy, Ratledge 32	Glorious Eclipses Slide Set	S&T Lapel PinOrder Form
Astronomical Algorithms, Meeus	Great Celestial Sphere Globe	S&T MugOrder Form
Astronomical Almanac for the Year 1998 4	Great Copernicus Chase, Gingerich	S&T SweatshirtOrder Form
Astronomical Calendar 1998, Ottewell	Southern Telescopes, Malin & Frew	S&TT-ShirtOrder Form
Astronomical Scrapbook, Ashbrook	History of Astronomy: An Encyclopedia, Lankford .24	Saturn Storm Spotlight Print
Astronomy & Space 1998 Weekly Calendar 4	Hourglass Nebula Spotlight Print	Sky-Gazer's Almanac 1998
Astronomy and Astrophysics Encyclopedia, Maran .25	How to Make a Telescope, Texereau	Sky & Telescope
Astronomy Explained, North	Hubble Deep Field Poster	Sky Atlas 2000.0, Tirion
Astronomy: A Self-Teaching Guide, Moché 6	Hubble Deep Field Spotlight Print27	Sky Atlas 2000.0 Chart Carrier
Astronomy: Anatomy of the Universe Poster 29	Hubble Library of Elec. Picturebooks CD-ROM	Sky Atlas 2000.0 Companion, Strong9
Astrophotography II, Martinez30	Hubble Space Telescope Slide Set #526	Sky Catalogue 2000.0, Hirshfeld et al
Astrophotography: An Introduction, Arnold 19	Hubble Space Telescope Slide Set #6	Sky Catalogue 2000.0 Diskette
Astroware 1 CD-ROM	Hubble Vision: Astronomy with the Hubble	Sky Gift Certificates Order Form
Atlas of Deep-Sky Splendors, Vehrenberg10	Space Telescope, Petersen & Brandt26	SKY Online Mouse PadOrder Form
Atlas of the Moon, Rükl	Introduction to Astro. Image Processing, Berry 30	Skylite Red & White LED Flashlight5
Aurora Poster	Lagoon Nebula Close-up Spotlight Print27	Sky Watch '98
BAA Chart of the Heavens, Tirion	Lagoon Nebula Wide-Field Spotlight Print	Small Astronomical Observatories, Moore
Backyard Astronomer's Guide, Dickinson & Dyer 6	Light and Color in the Outdoors, Minnaert 21	Solar Astronomy Handbook, Beck et al
Binocular Astronomy, Crossen & Tirion	Lunar Quadrant Maps	Solar Eclipse Poster
Blue Planet Globe	M16 Close-up Spotlight Print	Space Photos & Facts 1998 Calendar
Bright Star Atlas 2000.0, Tirion	Making Your Own Telescope, Thompson14	Spacecraft Tour of the Solar System Slide Set28
Build Your Own Telescope, Berry	Mars Globe	Star-Hopping for Backyard Astronomers,
Burnham's Celestial Handbook, Burnham20	Mars Map	MacRobert
Caldwell Card	Mars PlanetScape Poster	Star Names: Their Lore and Meaning, Allen 24
Caldwell Catalog Reprint, Moore & Pepin18	Mathematical Astronomy Morsels, Meeus	Star Testing Astronomical Telescopes, Suiter
Cambridge Astronomy Dictionary	Messier Album, Mallas & Kreimer	Star Theater
Cambridge Guide to Stars and Planets,	Messier Card	Star Ware, Harrington
Moore & Tirion	Messier Marathon Observer's Guide, Machholz 18	Starbirth in Serpens Poster
Cambridge Star Atlas	Messier Objects Poster	Starlite LED Flashlight5
Cat's Eye Nebula Spotlight Print27	Meteors, Bone	Starry Night Deluxe Software
CCD Astronomy	Millennium Star Atlas, Sinnott & Perryman 12-13	Stars: A New Way to See Them, Rey
CCD Camera Cookbook, Berry et al	MIRA AL Software	Sundials: History, Theory, and Practice, <i>Röhr.</i>
Choosing and Using a CCD Camera, Berry 30	Mirror-Image Moon Map	Telescope Building with John Dobson Videotape14
City Astronomy, Scagell	Monthly Sky Guide, Ridpath & Tirion	Telescopes and Techniques, <i>Kitchin</i>
Clementine Explores the Moon Slide Set28	Monthly Star Charts, Lovi & Blow	The Deep Sky: An Introduction, <i>Harrington</i> 19
Comet Explorer CD-ROM	Moon Map	The New Solar System, Beatty & Chaikin25
Comet Hale-Bopp & Milky Way Spotlight Print28	Moonrise Spotlight Print	TheSky Software
Deep-Sky Field Guide to Uranometria 2000.0,  Cragin et al	More Things in Heaven and Earth, Levy	Touring the Universe through Binoculars,  Harrington
Deep-Sky Objects for Binoculars, Kozak	NASA Atlas of the Solar System,  Greeley & Batson	Treasures of Deep Space Poster
Deep-Sky Planner 2.0 Software, Lang	NASA Moon Globe	Turn Left at Orion, Consolmagno & Davis 20
DeepMap 600	NGC 2000.0 and Diskette, Sinnott	Ultimate CCD Collection CD-ROM,
Dictionary of Minor Planet Names, Schmadel 24	NGC 604 in M33 Spotlight Print	Newton & Parker
Dying Star Eta Carinae Spotlight Print27	Night Sky Planispheres, Chandler	Universe at Your Fingertips, Fraknoi24
Eclipse!, Harrington	Night's Lights Globe	Uranometria 2000.0, Tirion et al
Edmund Sky Guide, Dickinson & Brown	Nightwatch, Dickinson	Uranometria Data Scale
Encyclopedia of Planetary Sciences,	Observer's Handbook 1998	Venus Globe
Shirley & Fairbridge	Orion Nebula Spotlight Print	View of the Universe, Malin
ESSCO Charts and Laboratory Exercises	Photographic Atlas of the Stars, Arnold et al 10	Views of the Solar System CD-ROM, Hamilton 25
Exploring the Moon through Binoculars,	Practical Guide to CCD Astronomy,	Voyager II Software
Cherrington	Martinez & Klotz30	Wonders of Universe 1998 Calendar

# FINE ASTRONOMY BOOKS & PRODUCTS



1 • Hubble Deep Field Poster New!

Take a glimpse into infinity with this 100-hour exposure from the Hubble Space Telescope, our deepest look yet into extragalactic space. Our beautiful color poster is printed on high-quality paper and features not only the Hubble Deep Field, but also images of the surrounding region of sky near the Big Dipper. 24 by 34 inches, shipped rolled in a sturdy cardboard tube.

HDEEP . . . \$9.95

2 • 3-D Tour of the Solar System (Windows, Mac, Unix) New!

By Paul Schenk, David Gwynn, and James Tutor

Step into another dimension and explore the solar system with spectacular 3-D images of the planets, their satellites, and the Sun. This new CD-ROM from the Lunar and Planetary Institute in Houston, Texas, features more than 150 true stereo images taken by NASA astronauts and robotic space probes. See active volcanoes on Jupiter's moon Io, hurricanes on Earth, breathtaking craters on Venus, faults and mountains on Mars, and Saturn's rings — all in amazing 3-D! Each image is accompanied by a table of scientific data and a brief geological description. Includes an extensive glossary and one pair of 3-D glasses.

System requirements: This CD-ROM is compatible with Mac, PC, and Unix operating systems. The images may be viewed in any World Wide Web browser compatible with HTML 3.0 or higher.

LPICD . . . \$24.95

3 • More Things in Heaven and Earth New!

By David H. Levy

What would it be like if we sent a poet to study and describe the night sky? Thanks to renowned amateur astronomer David Levy, we know the answer — it's written in this enjoyable little book. Comet hunter Levy's first-person narratives about exploring the sky are laced with astronomy-related poetry and prose from some of the world's great books. Explore the relationship between literature and science! 127 pages, 5½ by 7¾ inches, softcover.

82878 . . . \$11.95

4 • The Art and Science of CCD Astronomy New!

Edited by David Ratledge

When you're ready to take that first step into electronic imaging, let this book be your guide. Ratledge brings together articles from 12 leading amateur astronomers who routinely produce professional-quality images of the cosmos. These experts describe their techniques and offer essential advice for anyone considering the purchase and use of a CCD camera. A must for your library! 178 pages, 6 by 9½ inches, softcover.

61039 . . . \$39.95

Bulk Rate U.S. Postage PAID Sky Publishing Corp.

Sky Publishing Corp. 49 Bay State Road Cambridge, MA 02138 U.S.A.



Call toll free 800-253-0245 for fastest service!

(Outside the U.S. and Canada, call +1-617-864-7360.)

OTENS INSTEAD